Suborder Cirrhitoidei

Head more or less compressed, skull rather elevated, upper surface flattish or somewhat convex. Two nostrils each side of snout. Maxillary without supramaxillary. Preorbital expanded. Preopercle subcrescentic. Opercle rather deep, hind free edge more or less concave between 2 obtuse or acute prominences. Subopercle long, narrow, projects beyond opercle. Gill membranes united, free from isthmus. Gills 4. Pseudobranchiae present. Branchiostegals 3 to 6. Vertebrae 26 to 35. Body scaly. Lateral line complete, continuous, nearly straight.

depth 1 3/4 to 2 3/8; head 3 1/4 to 3 7/8, width 2 to 2 1/3. Snout 1 7/8 to 2 1/4; eye 3 to 4 1/4, 1 1/3 to 2 1/4 in snout, 1 to 1 1/3 in interorbital; teeth 48 to 50 in each jaw; maxillary 3 3/5 to 3 3/4 in head; interorbital 2 7/8 to 3, broadly convex; preopercle limb, infraorbital, opercle and scapular arch with fine radiating or parallel striae. Gill rakers 5 to 6 + 20, short, flexible, cuneate points.

Scales moderately small, lozenge shaped, 65 to 100 circuli. Cheek fully covered with small scales to preopercle ridge.

D. XIII, 10, I, fifth spine 1 4/5 to 2 in head, third ray 1 5/6 to 1 3/5; A. VII, 9, I, 3, third spine 1 3/4 to 2 3/8, third ray 1 1/3 to 1 3/4; caudal lunate, moderately emarginate, 1 to 1 1/8; least depth of caudal peduncle 3 1/6 to 4; pectoral 1 1/10 to 1 1/4; ventral 1 2/5 to 2.

Brown generally, scarcely paler on breast and belly. Head and body everywhere with close-set, variable, rounded grayish to golden spots, not larger than pupil; at head more or less formed an short reticulating lines or variable reticulations; in young spots much larger and greatly less numerous than in adult. Dusky brownish. Fins brownish, vertical ones clouded with darker or dusky and caudal with obsolete scattered conspicuous dark spots. In young vertical fins with

Ventrals without scaley axillary flap. Spinous dorsal well developed. Anal spines 3. Caudal with 15 principal rays, all or 13 branched. Pectorals with lower 5 to 8 rays simple. Ventrals rather far behind pectorals, each with spine and 5 branched rays.

The above is from Regan's definition in 1911, including 5 families.

Analysis of ~~Genera~~ Families

a.' Spinous dorsal longer than soft dorsal, spines 8 or 10. Cirrhitidae.

a.² Spinous dorsal more or less subequal with soft dorsal, spine 14 to 22.

b.' Teeth of jaws small, conic and acute. Chironemidae.

b.² Teeth of jaws compressed, and tricuspidate or lanceolate. Aplodactylidae.

Family Cirrhitidae

Body compressed, oblong. Head large, compressed. Snout moderate. Eye lateral, moderate. Mouth low, terminal, with lateral cleft. Premaxillaries protractile. Maxillary narrow, not sheathed by preorbital. Teeth small, pointed, some canine like, occasionally present on vomer and palatines. No bony suborbital stay on cheeks. Gill openings large, gill membranes separate and free from isthmus. Branchiostegals 3 to 6. Bones of skull very compact and solid, without spines or serrations on bones of cranium. Preopercle serrate or entire. Opercle without spine. Vertebrae 26 to 28, of which 16 to 18 caudal. Air bladder large and

Gesell., band 25, 1900, p. 425 (Ternate). — Pellegrin, Bull. Soc. Zool. France, vol. 30, 1905, p. 84 (Baie d'Along, Tonkin).

Siganus concatenatus Jordan and Seale, Proc. U. S. Nat. Mus., vol. 28, 1905, p. 789 (Negros)

Siganus lineatus (non Valenciennes) Evermann and Seale, Bull. Bur. Fisher., 26, 1906 (1907), p. 98 (Bulan). — Jordan and Richardson, l. c., vol. 27, 1907 (1908), p. 271 (Aparri).

Siganus vermiculatus (non Valenciennes) Seale and Bean, Proc. U. S. Nat. Mus., vol. 33, 1907, p. 248 (Zamboanga).

Siganus corallinus (non Valenciennes) Bean and Weed, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 607 (Batavia).

Siganus guttatus (non Bloch) Bean and Weed, l. c. (Batavia).

complicated or wanting. Pyloric caeca few. Scales moderate, cycloid or ctenoid. Lateral line continuous, not extending on caudal, its course parallel with outline of back. Dorsal fin continuous, long, the spinous and soft parts equal or subequal, and the spines not depressible in a groove. Soft dorsal low. Anal much shorter than soft dorsal, preceded by 3 spines. Caudal truncate. Pectoral short, broad, rays in lower half of fin simple and generally stout; membranes deeply incised. Ventral fins thoracic, inserted behind pectoral bases, with spine and 5 rays.

Carnivorous fishes of warm seas, apparently allied with the

Nigonus concatenatus (Valenciennes).

Amphacanthus concatenatus Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. ~~423~~ 127. Burma; Batavia. — Bleeker, Verh. Bat. Gen. Ind. Neerl., vol. 1, no. 5, 1856, p. (6) 46 (Amboina). — Bleeker, Verh. Bat. Gen. Ind. Neerl., deel 22, 1860, p. 113 (Burma). — Weber, Siboga Exped., band ~~65~~ 57, 1913, p. 330 (Waigeu).

Teuthis concatenata Cantor, Journ. Asiat. Soc. Bengal (Cat. Malay. Fish.), vol. 18, part 1, 1849, p. 1190 (Pinang). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 316 (Amboina, Pinang, Singapore). — Günther, Journ. Mus. Godeffroy, band 2-3, heft 5-6, 1874, p. 88 (Pelew Islands). — Day, Fishes of India, pt. 2, 1876, p. 167, plate 40, fig. 4. — Meyer, Ann. Soc. Espan. Hist. Nat. Madrid, vol. 14, 1885, p. 22 (North Celebes). — Day, Faun. British India, vol. 2, 1889, p. 90. — Steindachner, Abhandl. Senckenberg.

serranids in one way and in others
the scorpaenids.

3 examples. Marian Island, tide pools, Celebes. August 31, 1909. Length 30 mm.

30503. U.S.N.M. New Guinea. Australian Museum. Length 98 mm.

30602. U.S.N.M. New Guinea. Australian Museum. Length 107 mm.

55941. U.S.N.M. Bulan. Bureau of Fisheries. Length 258 mm. [4092.]

55951. U.S.N.M. Bulan. Bureau of Fisheries. Length 227 mm. [4093.]

56316. U.S.N.M. Cavite. G.A. Lung. 4 examples. Length 95 to 120 mm.

72704. U.S.N.M. Java. Messrs. Bryant and Palmer. 2 examples. Length 143 to 192 mm.

72746. U.S.N.M. Iloilo. R.C. MacGregor. Length 98 mm.

Genus Cirrhitichthys Bleeker

Cirrhitichthys Bleeker, Act. Soc. Sci. Ind. Neerl. (Amboina), vol. 2, p. 39, 1857. (Type Cirrhites graphidopterus Bleeker,

→ Neocirrhites Castelnau, Proc. Zool. Acclimat. Soc. Victoria), vol. 2, p. 101, May 10, 1873. (Type Neocirrhites armatus Castelnau, monotypic.)

(Cirrhitopsis Gill, Proc. Acad. Nat. Sci. Philadelphia, vol. 14, p. 109, 1862. (Type Cirrhitus aureus Schlegel, monotypic.)

Body ovoid, well compressed. Head moderate, deep, its upper profile concave over eyes. Snout short. Eye little advanced from middle of head, high and more or less impinging on upper profile. Mouth terminal, jaws equal or subequal. Maxillary reaches eye, inclined. Villiform teeth in jaws, small and canines in jaws, teeth also on vomer and palatines. Preopercle denticulate. Opercle spinate. Branchiostegals 6. No air bladder. Pyloric caeca few. Scales cycloid or weakly ctenoid, rather large on body and head. A single dorsal, with 10 spines and 11 to 13 rays. Anal spines 3, rays 6 or 7, second spine elongate. Pectoral with 6 or 7 lower simple rays.

Genus Cirrhitichthys Gill.

Cirrhitichthys Gill, Proc. Acad. Nat. Sci. Philadelphia, vol. 14, p. 104, 1862. (Type Cirrhites aureus Schlegel, monotypic.)

Cirrhitichthys splendens Ogilby

Cirrhitichthys splendens Ogilby, Mem. Austral. Mus., ~~1889~~ no. 2, p. 58, pl. 2, 1889 (type locality, Lord Howe Island) — Waite, Rec. Austral. Mus., vol. 5, pt. 3, p. 167, March 11, 1904 (Lord Howe Island).

Analysis of Species

a.[1] Eye $2\frac{1}{2}$ in head. armatus.
a.[2] Eye 3 in head. amplus.
a.[3] Eye $3\frac{2}{3}$ to $3\frac{7}{8}$ in head. callinirus.
a.[4] Eye 4 to $4\frac{1}{4}$ in head. aprinus.
a.[4] Eye $4\frac{2}{3}$ in head. aureus.

j.[2] Head and lateral line with short filaments. Thyrsanichthys.

i.[2] Head and body slender, former elongate and pointed; pectoral with upper 9 rays abruptly short, subequal, upper of lower simple rays longer; no palatine teeth. Hyphomacrus.

h.[2] Lower pectoral rays divided; vertical fins scaleless. Ivorsalmostes.

f.[3] Scorpaeninae. Dorsal spines 12.

m.[1] Bones of head without large muciferous cavities; occiput with 2 pairs of spines; scales, or with dermal flaps.

n.[1] Some or all pectoral rays branched.

o.[1] Lateral line developed, complete.

p.[1] Palatine teeth present.

q.[1] Scales on top of head ctenoid; armature of head moderate.

r.[1] Eye without supraorbital flap.

s.[1] Air bladder well developed. Sebastiscus.

s.[2] Air bladder obsolete. Helicolenus.

Cirritichthys aprinus (Castelnau)

Leocirrhites aprinus Castelnau, Proc. Zool. Acclimat. Soc. Victoria, vol. 2, p. 101, May 10, 1873 (type locality, Knob Island, Torres Strait).

Cirritichthys aprinus McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 255, Sep. 10, 1929 (reference).

Depth little over 2 1/3; head 4.
Eye 2 1/2 in head; upper jaw little longer than lower; lips thick; no upper canines, its villiform teeth even and only visible in front; lower jaw crowded with small, sharp, villiform teeth, with strong canines curved backwards, widest set 1 on each side in front and 2 or 3 backwards; teeth on vomer and palatines; preopercle with edge rounded; hind edge armed with row of rather long spines; opercle entire, with strong notch anteriorly, well advanced over pectoral base.

Scales 43 in lateral line; 16 transversely. Cheeks covered with very minute scales. Supra-scapula serrated.

D. X, 13, spines subequal, except greatly shorter first

spine; A. III, ?, first spine shortest, second longest with third subequal; pectoral rays 9, VI, reach back far as end of ventral; ventral rays I, 5.

Light yellowish brown, with back darker. Length 50 mm.

Queensland.

(Castelnau.)

Coris tichthys calliurus Regan

Coris tichthys calliurus Regan, Journ. Bombay Nat. Hist. Soc., vol. 16, no. 2, p. 322, pl. B, fig. 3, 1905 (type locality, Muscat, in 15 to 30 fathoms).

Depth 2 1/5 to 2 1/4; head 3 1/4 to 3 1/2. Snout 4 in head; eye 3 2/3 to 3 4/5, subequal with snout, little greater than interorbital; maxillary reaches 1/4 to 1/3 in eye, length 3 1/2 in head; preopercle edge strongly serrated.

Scales 41 to 43 in a longitudinal series; 5 above to spinous dorsal origin, 9 below; 4 rows on cheek. Suprascapula serrated. Vertical fins covered with scales in their basal halves.

D. X, 12, I, fifth spine 1 9/10 in head, first soft ray extended, reached caudal when laid back; A. III, 6, second spine 2 in head, first ray 2, caudal 1 1/4, truncate; least depth of caudal peduncle 2 1/3, pectoral 2 3/7 in fish without caudal; rays II, 4, VII, 7, ventral rays I, 5, fin 1 3/5 in head, reaches slightly beyond anal origin

Brownish, marbled with darker. Soft dorsal, anal and caudal almost blackish. Caudal pale yellowish, sharply separated from dark color of caudal peduncle, with pink tinge at base, dark posterior margin with few dark dots. Length without caudal 85 mm. (Regan.

Arabia.

Cirrhitichthys aprinus (Cuvier)

Cirrhites aprinus Cuvier, Hist. Nat. Poiss., vol. 3, p. 76, April 1829 (type locality, Timor).

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 73, 1860 (copied).

Cirrhitus aprinus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, March 1860 (reference):

Cirrhichthys aprinus Inc Cullock, Austral. Mus. Mem., No. 5, Pt. 2, p. 255, Sep. 10, 1929 (reference).
(Atlas Ichth. Ind. Neerl., vol. 7, pl. (27) 303, fig. 1, 1873-76);
Bleeker, Verh. Kon. Akad. Wet., Amsterdam, vol. 15 (Cirrit.), p. 12, Pl. (125) 303, fig. 1, 1875 (Celebes; Flores; Timor; Boro; Ceram; Amboina); — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 453, Oct. 1917 (Natal). — Savage, Hist. Nat. Madagascar, Pois., p. 514, 1891 (reference).

Cirrhites graphidopterus Bleeker,

Nat. Tijds. Ned. Indie, vol. 4, p. 106, 1853 (type locality, Amboina).

— Regan, Ann. Durban Mus., vol. 1, pt. 5, p. 459, July 25, 1917 (Natal).

Cirrhitichthys graphidopterus

Günther, Cat. Fish. Brit. Mus., vol.

2, p. 74, 1860 (Amboyna).

Depth 2 1/2 to 2 2/3; head 3. Eye ~~3~~ 4 to 4 1/4 in head, 1 1/5 in snout, slightly greater than interorbital width; front nostril with fringed flap; hind preopercle edge strongly denticulated; preopercle denticulate posteriorly or entire.

Scales 38 to 42 in lateral line; 4 above, 11 or 12 below; 4 rows on cheeks.

D. X, 12, first soft ray elongated in adult; A. III, 6; pectoral with 6 simple rays.

Rose or reddish, with 5 or 6 irregular dark brown or blackish cross-bars, which frequently broken up into series of round or irregularly shaped spots. Head, dorsal and caudal fins also spotted. Length 90 mm.

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Natal, East Indies. (Barnard.)

ichthys
Cirrhitops aureus (Schlegel)

Cirrhites aureus Schlegel, Fauna Japonica, Poiss., ft. 1, p. 15, pl. 7, fig. 2, 1842 (type locality, "baies extérieures de Nagasaki"). — Richardson, Ichth. China and Japan, p. 239, 1846 (Canton). — Snyder, Annot. Zool. Japan, vol. 3, p. 85, 1901 (reference).

Cirrhitichthys aureus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 75, 1860 (China). — Gill, Proc. Acad. Nat. Sci. Philadelphia, 186 p. 108, 1862 (name in key). — Day, Fishes of India, pt. 1, p. 145, pl. 35, fig. 2, 1875 (Madras); Fauna British India, vol. 2, p. 51, ~~1878~~ fig. 20, 1889. — Jordan and Herre, Proc. U. S. Nat. Mus., vol. 33, p. 161, fig. 1, 1907 (Misaki).

— Jordan, Tanaka, Snyder, Journ. fig. 135
College Sci., Tokyo, vol. 33 art. 1, p. 183, 1
1913 (reference).

— Izuka and Matsuura, Cat. Inst. Tokyo,
Vert., p. 145, 1920 (Kashiyama, Honshu).

Body deeper. Type Barbus Scale pattern.
(clypeus shield + Barbus.)

Cirrhitopsis aureus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 109, 1862 (reference).

Cirrhites fasciatus (not Cuvier) Jerdon, Madras Journ. Lit. Sci., p. 132, 1851 (Madras).

Cirrhitichthys bleekeri Day, Sea Fishery Rep., no. 27, p. cxci, 18 (type locality, India).

Depth 2 1/3; head 2 7/8, width 2. Snout 3 in head; eye 4, 1 2/5 in snout, subequal with interorbital; maxillary reaches 4/5 to eye, expansion 2 in eye, length 2 2/3 in head; band of villiform teeth above rather broad, with outer series but slightly enlarged, lower teeth in broad band anteriorly, villform, and outer series of rather large ones, largest ~~end~~ at rather strong canine at middle of each mandibular ramus; interorbital 5 1/2, concave; edge of preopercle with 22 strong denticles. Gill rakers 5+9, lanceolate, 1/2 of gill filaments, which 1 3/5 in eye.

Scales 33+2 in lateral line; 4 above, 11 below, 8 predorsal forward opposite hind eye edge; 4 rows on cheek below eye. Bases of fins scaly.

Suprascapula with 8 denticles on edge. Lateral line largely axial, little high along front part of caudal peduncle. Scales with 12 short, marginal, parallel basal striae, circuli minute or fine, not extending apically.

D. X, 12, I, fourth spine 2 in head, first $\frac{=}{1}$ and ends in filament; A. III, 6, second spine $\frac{=}{1}\frac{7}{8}$; caudal $\frac{=}{1}\frac{2}{5}$, slightly emarginate behind; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $\frac{=}{1}$, rays I, 6, VII; ventral rays I, 5, $\frac{=}{1}\frac{3}{5}$ in head.

Largely uniform brownish. Iris and iris all paler.

China, Japan.

U. S. N. M., No. 57752. Japan.
P. L. Jouy. Length 103 mm.

Genus Cyprinocirrhites Tanaka

Cyprinocirrhites Tanaka, Dobutsugaku Zasshi (Zool. Mag.), vol. 29, no. 347, p. 268, Sep. 15, 1917. (Type Cyprinocirrhites ni Tanaka, monotypic.)

Body elongately ovoid, head moderate, upper profile little waved. Snout short. Eye large, in front half of head. Mouth small, inclined, jaws little protruded. Maxillary reaches below eye. Teeth villiform in jaws, with few canines. Few teeth on vomer, none on palatines. Preopercle serrate. Scales large, cycloid, somewhat deciduous). Dorsal with upper edge largely straight, rays 16 or 17. Caudal deeply emarginate, lobes filamentous.

Pectoral with upper rays abruptly short, lower ones abruptly elongate and simple.

Analysis of Species

a'. First dorsal spine $2\frac{1}{5}$ in second; first dorsal rays subequal with highest anterior dorsal spines. iii.

a². First dorsal spine $1\frac{1}{2}$ in second; first dorsal rays twice spinous dorsal height. polyactis.

Cyprinocirrhites mi Tanaka

Cyprinocirrhites mi Tanaka, Dobutsugaku Zasshi (Zool. Mag.), vol. 29, no. 347, p. 268, Sep. 15, 1917 (type locality, Tanabe, Province of Kii, Japan); Fig. Descr. Fishes of Japan, Ed. 2, p. 507, pl. 137, fig. 384, 1935 (type).

Depth $2\frac{2}{3}$; head $3\frac{1}{5}$. Snout 4 in head; eye $3\frac{3}{7}$, greater than snout; maxillary reaches $\frac{1}{5}$ in eye, length $2\frac{2}{3}$ in head; interocular $3\frac{3}{7}$. Gill rakers 6 + 12. Scales 45 + 3 in lateral line, 5 above, 11 below.

D. X, 16, third spine $\frac{2}{3}$ in head, front height of soft dorsal $1\frac{4}{5}$; A. III, 6, second spine $2\frac{2}{5}$, fourth ray $1\frac{2}{3}$; caudal

Analysis of Species

a.[1] Soft dorsal with 12 or 13 rays.

b.[1] Eye $2\frac{1}{2}$ in head. armatus.

b.[2] Eye $3\frac{2}{3}$ to $3\frac{7}{8}$ in head. calliurus.

b.[3] Eye 4 to $4\frac{1}{4}$ in head. aprinus.

b.[4] Eye $4\frac{2}{3}$ in head. aureus.

a.[2] Soft dorsal with 16 or 17 rays; eye $3\frac{4}{5}$ in head. polyactis.

2 1/6 in rest of fish, median rays 1 3/5 in head; least depth of caudal peduncle 2 1/3; pectoral 2 3/4 in fish without caudal, rays I, 7, VI; ventral rays I, 5, fin = = 1 1/4 in head.

Reddish yellow. dorsal dusky; spinous fin with darker margin, as dark patch from second to fifth spines. Soft dorsal with with several rows of dusky spots (5 rows or as dark lines, counting margin, shown on figure). Both anal and ventral like soft dorsal (~~latter~~ first shown with 8 lines and second with 8 as figure). Caudal with dusky and darker hind margin on lower half (14 lines on figure). Pectoral like body. Length 100 mm. (without caudal filament).

(Tanaka.)

Japan.

~~Cyprinocirrhites~~
~~Cirrhitichthys~~ polyactis (Bleeker)

Cirrhitichthys polyactis Bleeker,
Verh. Kon. Akad. Wet. (Cirrh.), vol. 15,
p. 16, 1875 (type locality, Amboina);
~~Verh. Kon. Akad. Wet., Amsterdam,~~
~~(Cirrit.), vol. 15, p. 16, 1875 (types).~~
Atlas Ichth. Ind. Neerl., vol. 8, pp.
147, pl. (76) 354, fig. 1, 1876-77 (types).
Cirrhitichthys polyactis Bleeker,

— McCulloch, Austral. Mus. Mem.,
No. 3, pt. 2, p. 255, Sep. 10, 1929
(reference).

depth 3; head $3\frac{1}{3}$. snout $4\frac{1}{8}$ in head from snout tip; eye $3\frac{4}{5}$, greater than snout; maxillary reaches below first fifth of eye, length $2\frac{4}{5}$ in head from snout tip; teeth in jaws in several series, with outer enlarged conic series; no upper canines and 2 or 3 unequal lower; teeth on vomer in a ^ - shaped band, broader band on palatine; hind and lower preopercular edge denticulate, also suprascapula

Scales?

D. X, 16 or 17, third spine $2\frac{1}{2}$ in = total head length, last spine $2\frac{1}{8}$, first ray $1\frac{1}{4}$; A. III, 6 or 7, third spine 2, first = branched ray $1\frac{4}{5}$; caudal $2\frac{3}{5}$ in rest of fish, deeply emarginate behind with upper and lower

tips each ending in a filament;
least depth of caudal peduncle
2 1/4 in total head length; pectoral
rays I, 7, II, fin 2 3/4 in fish
without caudal; ventral 1 1/2 in
total head length, rays I, 5.
Uniform roxy? or golden?
Length 125 mm. (Bleeker.)
East Indies.

Genus Cirrhitus Lacépède

Cirrhitus Lacépède, Hist. Nat. Poiss., vol. 5, p. 2, 1803. (Type Cirrhitus maculatus Lacépède, monotypic.)

Cirrhites Duméril, Zool. Analyt., p. (142) 334, 1806. (Atypic! Type Cirrhitus maculatus Lacépède.)

20132. Bacoor, Luzon market. June 15, 1908. Length 123 mm.

1 example. Below mouth of Mindanao River, Catabato, Mindanao. May 20, 1908. Length 60 mm.

12402. Bolalo Bay, Palawan. December 21, 1908. Length 188 mm.

5673. Busin Harbor, Burias Island. April 23, 1908. Length 254 mm.

5515, 8860, 13800. Catbalogan, Samar. April 15, 1908. Length 158 to 260 mm. Very dark bay, nearly black. Top of head and body with elliptical dark greenish spots; breast and belly paler; purplish shades showing as stripes of more intense color changing to bronze toward middle of body. Side of head olive. dorsal very dark olive. Anal bronzed. Caudal dark purplish smoky. Pectoral rays dusky olive.

Body ovoid, moderately compressed. Head large, robust, longer than deep. Snout blunt. Eye advanced, in front half of head and impinging on upper profile of head. Mouth large, low, terminal and jaws nearly equal, or lower little shorter. Maxillary large, little inclined, extends below eye. Teeth small, fine, in bands in jaws and on vomer and palatines. Front nostrils fringed. Preopercle edge finely serrated. Opercle ends behind in soft flap, projects beyond obscure, flat spine. Gill membranes broadly united across isthmus. Branchiostegals 5. Scales large, smooth, cycloid, and rather irregularly arranged.

Scales rather large on nape, opercle and breast, small on cheek. Soft vertical fins scaly basally. Dorsals continuous, subequal, with 10 strong spines and 11 or 12 rays. Anal spines 3, stout, rays 6. Caudal truncate. Pectoral with 7 lowermost rays thick, and free terminally.

Rather large brilliant fishes, mostly spotted or mottled.

Analysis of Species

a.[1] Second anal spine 2 1/4 to 3 1/6 in head. *pinnulatus*.

a.[2] Second anal spine 3 1/4. *rivulatus*.

Cirrhitus pinnulatus (Schneider)

Labrus pinnulatus (Forster) Schneider, Syst. Ichth. Bloch, p. 264, 1801 (type locality, Tahiti). — Lichtenstein, Descript. Animal. Forster, p. 186, 1844 (Tahiti).

Cirrhitus pinnulatus Fowler, Mem. Bishop Mus., vol. 10, p. 237, pl. 27A, 1928 (Marcus Island, Wake, Nihoa, Necker, Laysan, Guam, Rarotonga, Cook Islands, Honolulu, Samoa, Oahu, Maui, Kauai, Society Islands, Kingsmills, Marshalls at Ebon and Ascension Islands); Proc. Acad. Nat. Sci. Philadelphia, p. 656, 1929 (1930) (Honolulu; Hawaiian Islands);

brownish, more or less clouded with dusky, anal with grayish-white tinge. Pectoral pale or grayish-brown. Ventral more or less whitish, with grayish shades. Iris grayish to whitish.

Ceylon, India, East Indies, Philippines. Preserved specimens are often quite dark or with very obscure markings.

Mem. Bishop Mus., vol. 11, No. 5, p. ,
1931 (Honolulu); Proc. U. S. Nat.
Mus., vol. 81, art. 8, p. 5, 1932 (Niua-
foou Island); Mem. Bishop Mus.,
vol. 11, No. 6, p. 422, 1934 (Nukulaelae;
Funafuti; Pleasant Island; Anteitum;
Hawaiian Islands; Viatupu in Ellice
Islands).

(1295

Depth 2 1/10 to 2 1/4; head 3 2/3 to 4 1/5, width 1 7/8 to 2 1/10. Snout 2 1/3 to 2 2/5; eye 2 4/5 to 4 3/4, 1 1/6 to 2 1/8 in snout, 1 to 1 3/4 in interorbital; teeth about 48 to 50 in each jaw; maxillary 3 1/4 to 3 7/8 in head; interorbital 2 3/5 to 2 3/4, broadly convex; preopercle limb, opercle and suprascapular arch finely striate. Gill rakers 4+18, short, entire joints.

Scales minute, ovoid elongate, cycloid, 55 to 120 circuli. Check more or less entirely covered with small scales to preopercle ridge.

D. XIII, 10. I; fifth spine 1 3/4 to 2 in head, third ray 1 4/5 to 1 9/10; A. VII, 9, I, third spine 1 3/4 to 2, third ray 1 3/4 to 2 1/6; caudal lunate, moderately emarginate, 3 3/5 to 3 4/5 in combined head and body; least depth of caudal peduncle 3 2/3 to 4 in head; pectoral 1 1/5 to 1 1/4; ventral 1 3/4 to 2 4/5.

Back and upper surfaces variably brown to darker, below much paler. Back rather finely spotted with grayish, spots usually very small and crowded on predorsal, often tendency to form short longitudinal gray bars of variable length. Below lateral line variable series of white longitudinal bands, often broader somewhat or with 10 to 12 more or less complete and broader below median axis of body. Cheeks mottled or speckled with gray and white blotches, or very numerous dots with age. Vertical fins

Labrus marmoratus Lacépède, Hist. hat. Poiss., vol. 3, pp. 438, 493, pl. 5, fig. 3, 1802 (type locality, Great Equatorial Ocean [= Indo-Pacific]).

Cirrhitus marmoratus Gill, Proc. Acad. hat. Sci. Philadelphia, p. 107, 1862 (~~Hawaiian~~ reference Islands). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 527, 1902 (1904) (Honolulu; Puako Bay, Hawaii). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 452, pl. 70, 1903 (1905) (Honolulu, Kailua, Hilo). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 278, 1905 (1906) (Apia). — Jordan and Starks, Proc. U. S. Nat. Mus., vol. , p. 699, 1906 (Yabu Island). — Jordan and Herre, Proc. U. S. Nat. Mus., vol. 33, p. 159, 1907 (Yabu record).

North Borneo). — Beaufort, Bijd. dierk. Amsterdam, deel 19, 1913, p. 126 (Waigiu). — Fowler, Copeia, no. 58, June 18, 1918, p. 64 (Philippines). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 57 (Cebu, Philippines).

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— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 452, ~~Oct~~ pl. 19, fig. 4, Oct. 1927 (Natal).
— Fowler, Bull. Bishop Mus., No. 38, p. 18, 1927 (Washington, Baker, Fanning and Kahoolawe Islands); Proc. Acad. Nat. Sci. Philadelphia, p. 656, 1929 (1930) (Honolulu; Hawaiian Islands).

— Pietschmann, Bull. Bishop Mus., No. 73, p. 15, 1930 (Pearl and Hermes Reef).

boudji, Bantam), p. 740 (Macassar); l.c., deel 5, 1853, p. 154 (Macassar); l.c., deel 7, 1854, p. 227 (Macassar), p. 313 (Bantam); l.c., deel 10, 1856, p. 347 (Rio, Bintang); l.c., deel 12, 1856, p. 215 (Mar); l.c., deel 16, 1858, p. 408 (Japara, Java); l.c., deel 17, 1858-59, p. 143 (Boleling, Bali); l.c., deel 20, 1859-60, p. 141 (Badjoa, Bali); l.c., deel 21, 1860, p. 38 (Muntok, Banka). — Weber, Siboga Exped., Fische, 1913, p. 326 (Macassar).

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Cirrhites marmoratus Bleeker,
Rech. Faune Madagascar, pt. 4, p.
93, 1875 (reference); Verh. Kon.
Akad. Wet. Amsterdam, vol. 15
(Cirrit.), p. 3, 1875 (Sumatra,
Amboina); Atlas Ichth. Ind.
Néerl., vol. 8, p. 142, pl. (66) 344,
fig. 5, 1876-77 (Sumatra; Amboina).

Cirrhites marmoratus Veale, Occas. Pap. Bishop Mus., vol. 1, No. 5, p. 17, 1902 (Honolulu). — Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 491, 1902 (1903) (Honolulu). — Bryan and Herre, Occas. Pap. Bishop Mus., vol. 2, No. 1, p. 131, 1902 (1903) (Marcus Island). — Ginsberg, Bull. Bishop Mus., No. 107, p. 20, 1933 (Pearl and Hermes Reef).

Cirrhitus marmoratus Fowler, Copeia, No. 112, p. 83, Nov. 20, 1922 (Hawaii) (error).

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Theutis javanica Bleeker, Nitterik. Nat. Tijds. Hollandsch Indië, deel 21, 1903 (1904), p. 159 (Singapore).

Amphacanthus javanicus Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 118 (Pondicherry, Batavia, Malacca). — Schlegel and Müller, Verhandl. Nat. Gesch. Zool., 1839–44, p. 10 (Batavia —) — Bleeker, Verh. Batav. Genoot. (Madura), deel 22, 1849, p. 5 (Kammal); l.c. (Nat. Hist. Bengal), deel 25, 1853, p. 48. — Bleeker, Nat. Tijds. Ned. Indië, deel 2, 1851, p. 471 (Rio); l.c., deel 3, 1852, p. 53 (Singapore), p. 717 (Karang

Cirrhitus maculatus Lacépède, Hist. Nat. Poiss., vol. 5, pp. 2, 3, 1803 (no type locality) (on Commerson. — Fowler and Ball, Bull. Bishop Mus., No. 26, p. 16, 1925 (Johnston and Wake Islands).

Cirrhitichthys maculatus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 74, 1860 (Polynesia, India, Hawaiian Islands, Red Sea, Mauritius) — Klunzinger, Verh. Zool. Bot. Ges. Wien, vol. 20, p. 798, 1870 (Red Sea). — Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 59, 1880 (Honolulu).

Cirrhites maculatus Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 71, pl. 51, fig. A, 1874 (Hawaiian, Society and Cook Islands). — Pöhl, Cat. Mus. Godeffroy, No. 9, p. 29, 1884 (Mortlock). — Waite, Mem. Australian Mus., No. 3, p. 186, 1897 (Funafuti); Rec. Australian Mus., vol. 5, p. 3, 1903 (Nauru, Pleasant Islands, Marshalls). — Sauvage, Hist. Nat. Madagascar, pp. 209 (p. 14), 1891 (type).

Siganus javus (Linnaeus).

Teuthis javus Linnaeus, Syst. Nat., ed. 12, 1766, p. 507. Java. — Walbaum, Arted. Pisc., vol. 3, 1792, p. 623 (on Linnaeus). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 375 (Ceylon, Pinang, Singapore, Amboina, Hobson Bay). — Bleeker, Nat. Tijds. Dierk., deel 2, 1865, p. 3, (Manila Bay). — Meyer, Comm. Voc. Espan. Hist. Nat. Madrid, vol. 14, 1885, p. 22 (Macassar, South Celebes, Manila Bay and Cebu). — Boulenger, Proc. Zool. Soc. London, 1887, p. 659 (Muscat). — Elera, Cat. Faun. Filip., vol. 1, 1895, p. 529 (Luzon, Manila, Cebu). — Fowler, Journ. Acad. Nat. Sci. Phila., vol. 12, series 2, 1904, p. 545 (Padang).

Theutis javus Bonnaterre, Tabl. Ichth., 1788, p. 157 (Java). ~~— Bleeker, Nieuw. Nat. Tijdschr. Nederl. Indië, deel 24, 1903 (1904), p. 159 (Singapore).~~

Cirrhites (Cirrhitichthys) maculatus Steindachner, Denksk. Akad. Wiss., math.-naturw. Kl., vol. 70, p. 490, 1901 (Honolulu; Laysan).

Cirrhites maculosus Bennett, Zool. Journ., vol. 4, p. 38, 1828 (type locality, Hawaiian Islands).

Cirrhites maculosus Rüppell, Atlas Reise. nördl. Afrika, Fische, p. 13, pl. 4, fig. 1, 1828 (north part of Red Sea).

dorsal first divided, first with 10
spines and second with 7 rays.
Plectrogenium.

or snout.

organum

II. Lo. Snout produced, muzzle as short
tube; largely uniform gray brown, head,
thorax and upper pectoral ray dusky:

vulpinus

Cirrhites punctatus Cuvier, Hist. Nat. Poiss., vol. 3, p. 70, 1829 (no type locality). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 72, 1860 (no locality).

— Bleeker, Ned. Tijds. Dierk., vol. 3, p. 176, 1866 (Bourbon). — Kner, Sitz. Ber. Akad. Wiss. Wien: math.-naturw. Kl., vol. 57, pt. 1, p. 308, 1868 (Navay, Samoa). — Schmeltz, Cat. Mus. Godeffroy, no. 4, p. 65, 1869 (Navay).

— Day, Fishes of India, pt. 1, p. 144, 1875 (note). — Bleeker, Reck. Faune Madagascar, pt. 4, p. 93, 1874 (reference).

— Sauvage, Hist. Nat. Madagascar, Poiss., p. 514, 1891 (referenced).

Cirrhitus punctatus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, March 1862 (reference).

— Schmeltz, op. cit., no. 7, p. 42, 1879 (Navaii). — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 29, 1884 (Navaii).

Perca gobioides Günther, Cat. Fish. Brit. Mus., vol. 2, p. 74, 1860 (type locality, India; name in text).

Cirrhites armillaris Günther, op. cit., p. 75, 1860 (no type locality; name in text).

Cirrhites alternatus Gill, Proc. Acad. Nat. Sci. Philadelphia, vol. 14, pp. 106, 107, March 1862 (type locality, Sandwich Islands).

Depth 2 3/4 to 3; head 2 2/3 to 2 3/4, width 1 1/2 to 2. Snout 2 7/8 to 3 1/8 in head; eye 3 3/4 to 6 7/8, 1 1/3 to 1 2/5 in snout, greater than interorbital; maxillary reach 1/2 in eye or opposite its hind edge, expansion 1 7/8 to 2 in eye, length 2 1/6 to 2 2/5 in head; interorbital 5 3/4 to 6 5/8, deeply concave. Gill rakers 4 + 13, low, asperous tubercles, greatly lower than gill filaments, which 1 3/5 to 2 1/6 in eye.

Scales 37 to 42 + 2 or 3 in lateral line; 4 or 5 above, 9 or 10 below; 13 to 18 predorsal, of which 7 to occiput; 20 to 25 rows on cheek. Scales with 8 basal radiating striae; circuli very fine.

D. X, 11, I, fourth spine 2 1/2 to 3 in head, first ray 2 to 2 1/10; A. III, 4, I to III, 6, I, second spine 2 1/4 to 3 1/6, second ray 1 3/4 to 2 1/6; caudal 1 1/2 to 1 4/5, little convex behind; least depth of caudal peduncle 2 1/2 to 3 2/3; pectoral 1 1/4 to 1 3/5, rays I, 6, VII; ventral rays I, 5, fin 1 2/5 to 1 7/8 in head.

Brown above, paler below, in life marbled and blotched with olive blue and white, also with numerous variable red spots. Head pale bluish with irregular yellowish or orange brown lines, and darker blue bands across mandible. In alcohol back and sides with fine spots of dusky to blackish,

streaks on head and much finer blackish spots on caudal. Dr dorsal spots coarser and few on anal. Few dull spots on pectoral.

Back usually with 4 large reddish brown saddles in life.

Young brown, paler below. Pattern forms 3 alternated rather large whitish blotches, 6 in each series. Intervening brown area obscurely blotched with dusky. Head with large brown blotches, 2 across chin, one behind maxillary. Vertical fins pale, spotted with deep brown. Paired fins pale brown, with brown spot at pectoral base and 2 more at gill opening.

Red Sea, Natal, Bourbon, Madagascar, India, East Indies, Micronesia, Polynesia, Hawaii.

Cirrhitus rivulatus Valenciennes

Cirrhites rivulatus Valenciennes, Voy. Venus, Zool., p. 309, pl. 3, fig. 1, 1855 (type locality, "aux Galapagos?"). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 519, 1860 (copied).

— Jordan and McGregor, Rep. U. S. Fish Comm., pt. 24, p. 283, 1898 (1899) (Clarion Island; Socorro Island). — Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 2, p. 1491, 1898 (Revillagigedos).

Cirrhitus rivulatus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, March 1862 (reference); p. 259 (Cope Van Lucas). — Snodgrass and Heller, Proc. Washington Acad. Sci., vol. 6, p. 385, Jan. 31, 1905 (Tower Island).

Cirrhitus betaurus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 259, 1862 (type locality, Cape San Lucas).

Cirrhites betaurus Jordan and Evermann, Bull. U. S. Nat. Mus., no. 47, pt. 2, p. 1492, 1898 (Cape San Lucas; Magattan).

Cirrhichthys rivulatus Günther, Trans. Zool. Soc. London, vol. 6, no. 4, p. 42, pl. 36, fig. A, 1868 (Panama).

Depth 2 4/5; head 2 3/5. Snout 4 4/5, 3 2/5 in head; eye 1/2 in snout; maxillary reaches 2/3 in eye, expansion 1 3/4, length 2 3/4 in head; interorbital 1/2 wide at orbit, deeply concave; low longitudinal median crest on crown of head; preopercle finely serrated behind.

Scales 47 in lateral line; 6 above, 14 below. Cheeks (on figure) with very small, fine scales. Small scales on prepectoral region and bases of soft dorsal and caudal.

D. X, 11, fourth spine 3 1/4 in head, first ray 2 3/5; A. III, 6, second spine 3 1/4, second ray 2, caudal 1 4/7, truncate; least depth of caudal peduncle 3 1/8; pectoral 1 1/2, rays I, 7, VII; ventral rays I, 5, length 1 9/10 in head.

Brownish, with transverse dark brown bands and spots, all of which edged with light blue. Two bands on head crossing preopercle; 5 on body and tail, formed of large, more or less confluent round spots; especially third and fourth terminate above each in pair of large spots, first pair occupying end of spinous and commencement of soft dorsal, second basal portion of end soft dorsal. Caudal and anal fins with similar ocellated spots. Brown band across inner side of root of pectoral. Length 125 mm.

(Günther.)

Galapagos, Panama.

Genus Amblycirrhitus Gill

Amblycirrhitus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 105, March 1862. (Type Cirrhites fasciatus Cuvier, orthotypic.)

Body oblong-cuneiform, highest before ventrals, before which rapidly curved upwards. Head short, elevated, higher than long, occipito-nasal outline very oblique and nearly straight, nape gibbous. Snout slightly convex. Mouth little oblique, moderate, chiefly under eyes. Teeth pluriserial, with canines obsolete or rudimentary. Preopercle finely serrated on hind edge. Branchiostegal rays 6. Scales large. Dorsal begins on

nape above preopercle; spinous fin much lower than articulated, membrane very deeply notched and extended into slender lobe behind each spine. Anal with 3 spines, second largest, branched rays 6. Caudal entire, angles acute. Pectoral with undivided rays slightly produced.

One species.

Genus Paracirrhites Bleeker

Paracirrhites Bleeker, Rech. Faune de Madagascar, Poiss.: pt. 4?, p. 93, 1875. (Type Cirrhites forsteri Block, designated by Jordan, Genera of Fishes, pt. 3, p. 378, 1919.)

mm. Back and sides with numerous blue dots; dark blotch at shoulder.

canaliculatus

aa. Ground color blue, with golden hexagonal dots placed densely and covering head, body and vertical fins; caudal deeply emarginate; depth 2 1/5.

punctatus

aaa. Ground color lighter than markings, which in form of brown spots or vermiculated streaks; depth 2 to 2 3/5.

n. Caudal subtruncate or moderately emarginate.

o. Reddish, with reddish gray clouding on head; body, caudal and bases of dorsals and anals densely spotted with reddish brown.

guttatus

oo. Light brownish olive; body with brown spots, which smaller than interspaces between and confluent

Body elongately ovoid, compressed. Head large, compressed. Snout blunt, obtuse. Eye rather small, in front half of head and impinging on upper profile. Mouth low, little inclined, lower jaw little produced. Maxillary extended below eye, expanded terminally. Jaws with some canine like teeth. Teeth on vomer, none on palatines. Front nostril with ciliated fleshy flap. Preopercle edge finely serrate. Branchiostegals 5. Scales moderately small, cycloid, firmly adherent. Scales rather large on cheeks. Lateral line complete, axial along side of body. Dorsals continuous, subequal, with 10 spines and 11 to 14 rays. Anal

Cirrhitichthys oxycephalus (Bleeker)

Cirrhites oxycephalus Bleeker, Ind. Ned. Indie, vol. 8, p. 408, 1855 (type locality, Amboina).

Cirrhitichthys oxycephalus Bleeker, Nat. Tijds. Ned. Indie, vol. 10, p. 474, 18 (reference). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 75, 1860 (no locality). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 453, Oct. 1927 (Durban). — Sauvage, Hist. Nat. Madagascar, Poiss., p. 514, 1891 (reference).

with 3 spines and 6 rays. Caudal moderate, truncate. Pectoral small, lower 6 to 8 rays simple, ends free. Ventral inserted opposite middle of depressed pectoral.

Indo Pacific.

The following little known species I am unable to place satisfactorily in the analysis of species.

Paracirrhites quadrimaculatus (Sauvage)

Cirrhites quadrimaculatus (Liénard Sauvage, Hist. Nat. Madagascar, Poiss., p. 211 (514), 1891 (type locality, Mauritius).

Head little larger than deep. Predorsal well arched till before eye, cavernous. Eye above lateral line, with small spines behind orbit, meets upper profile of head. Interorbital less than half of eye diameter. Preopercle rounded, hind edge strongly armed and lower edge with some points directed forward. Opercle with flat spine and suprascapula similarly armed.

D. X, 13, third spine 2 2/3 in total length of fish; A. III, 6, second spine longer than 3 intermediate spines of dorsal, which more than half of body depth, first branched ray longer than soft fin; caudal slightly forked; pectoral rays 6, VIII, fifth ray 1/3 length of fish; ventral well posterior.

Color rose yellow, with large rose spots; those on back and tail varied with gray. Cheeks with 3 spots from eye. Lips greenish. Opercle with rosy spots. Dorsal marbled with gray and rose. Anal olive gray. Caudal marbled rose and white. Pectoral pale rose. Ventral gray. Length 125 mm. (Sauvage)

Mauritius.

Analysis of Species.

a.' Scales 45 to 55 in lateral line.

b.' Dorsal rays 11 or 12; anal rays 6 or 7.

c.' Depth 3 3/4; eye 2 2/3 in head. amblycephalus.

c.² Depth 4 1/2 to 6 1/5; eye 2 1/3 to 2 4/5 in head.

d.' No spots on head and body anteriorly; large dark post-ocular scellus. arcatus.

d.² Deep red spots on head and body anteriorly; no dark post-ocular blotch; pale lateral longitudinal band on tail posteriorly, with parallel dark band alongside. forsteri.

c.³ Depth 6 1/4 to 6 3/5; eye 2 7/8 to 3 1/5 in head.

e.[1] Body and vertical fins all with close set black spots, one on each scale.
hemitictus.

e.[2] Back, from head to caudal above lateral line, with close set black spots, few or none on spinous dorsal.
polysticticus.

b.[2] dorsal rays 13.
guichenoti.

b.[3] dorsal rays 14.
fasciatus.

a.[2] Scales 36 to 40; dorsal rays 13; anal rays 9.
melanotus.

Paracirrhites amblycephalus (Bleeker)

Cirrhites amblycephalus Bleeker, Nat. Tijds. Ned. Indië, vol. 13, p. 378, 1857. (type locality, "Ins. Sangié"). — Günther, Cat. Fish. Britt. Mus., vol. 2, p. 73, 1860. (copied).

Cirrhites amblycephalus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, March 1862 (reference).

Paracirrhites amblycephalus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 15 (Cirrit.), p. 9, 1875 (Sangir); Atlas Ichth. Ind. Néerl., vol. 8, p. 145, pl. (72) 350, fig. 1, 1876-77 (type).

Depth 2 2/3; head 2 7/8. Snout 3 in head from snout tip; eye 3 3/4; 1 1/4 in snout; maxillary reaches 7/8 in eye; ~~interorbital~~ expansion 1 3/4, length 2 1/6 in head from snout tip; teeth in bands in jaws, upper with outer little enlarged series, single canine each side below; preopercle edge with numerous fine serrae.

Scales 48 to 50 in lateral line; 5 above, 13 below; 6 rows on cheek below eye to preopercle flange. Caudal base scaly.

D. X, 11 or 12, fourth spine 2 4/5 in total head length, first ray 2; A. III, 6 or 7, second spine 2 1/2, third ray 1 4/5; caudal 1 1/2, convex behind; least depth of caudal peduncle 2 4/5; pectoral

1 3/4, rays II, 5, VII; ventral rays I, 5; fin 1 7/8 in total head length.

Body golden red. Rounded brown blotch at upper hind eye edge long at eye and edged with yellow. On body 16 to 18 longitudinal brownish streaks or lines. Fins golden rosy? Length 99 mm. (Bleeker.

East Indies.

Paracirrhites arcatus (Cuvier)

Cirrhites arcatus Cuvier, Hist. Nat. Poiss., vol. 3, p. 74, 1829 (type locality, Mauritius; Tahiti). — Lesson, Voy. Coquille, Zool., vol. 2, p. 227, 1830.

— Richardson, Voy. Samarang, Fish, p. 26, pl. 5, figs. 3–5, 1848. (Cape of Good Hope).

— Günther, Cat. Fish. Brit. Mus.,
vol. 2, p. 72, 1860 (Mauritius).

Cerithites areata (Parkinson)
Valenciennes, Règne Animal, Cuvier,
Paris., ed. ill., (no pagination)
page opposite pl. 10, 1839.

— Kner, Sitzg. Akad. Wiss. Wien, math.-naturw. Kl., vol. 57, pt. 1, p. 308, 1868 (Navay, Samoa). — Schmelz, Cat. Mus. Godeffroy, no. 4, p. 15, 1869 (Navay). — Günther, Journ. Mus. Godeffroy, vols. 2–3, pts. 5–6, p. 70, pl. 49, figs. B–C, 1874 (Hawaii; Society Islands; Samoa; Solomons). — Schmelz, Cat. Mus. Godeffroy, no. 6, p. 13, 1877 (Ponapé); no. 7, p. 42, 1879 (Navaii). — Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 59, 1880 (Honolulu). — Macleay, Proc. Linn. Soc. New South Wales, vol. 8, p. 265, 1883 (south east New Guinea). — Savage, Hist. Nat. Madagascar, Poiss., p. 210 (514), 1891 (evidently type).

38822 U.S.N.M. Tokyo market. Japanese Educational Museum. Length 155 mm.

50756 U.S.N.M. Nagasaki, Japan. Messrs. Jordan and Snyder. Length 220 to 240 mm. 2 examples.

57496 U.S.N.M. Japan? P. L. Jouy. Length 200 to 230 mm. 4 examples.

70753 U.S.N.M. Misaki, Sagami. Albatross Collection 1906. Length 32 to 56 mm. 23 examples.

Cirrhites areatus Valenciennes,
Règne Animal, Cuvier, Pois., ed. ill., pl. 10, fig. 2, 1839.

Cirrhites areata (Parkinson) Valenciennes, op. cit. (no pagination), page opposite pl. 10, 1839.

Cirrhitus arcatus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, 1862 (~~Hawaii~~ - reference):

Cirrhites arcuatus Günther, Cruise of Curacoa, Brenchley, p. 409, 1873 (Volcanos). — Pöhl, Cat. Mus. Godeffroy, No. 9, p. 29, 1884 (Hawaii). — Boulenger, Ann. Mag. Nat. Hist. London, ser. 6, vol. 20, p. 372, 1897 (Rotuma Island).

Cirrhites (Amblycirrhites) arcatus Steindachner, Denks. Akad. Wiss. Wien, math.-naturw. Kl., vol. 70, p. 490, 1901 (Honolulu).

Perca arcata (Parkinson) Cuvier, Hist. Nat. Poiss., vol. 3, p. 107, 1862 (Hawaii).

Prionurus microlepidotus Lacépède.

Prionurus microlepidotus Lacépède, Ann. Mus. Hist. Nat. Paris, tome 4, 1804, p. (205) 211. No locality (voyage of Peron). — Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. ~~48~~ 295, plate 292 (type). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 347 (copied).

Prionurus scalprum Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. ~~50~~ 298, (Japan). — Schlegel, Faun. Japn. Poiss., dec. 7–9, 1845, p. 129, plate 70 (Nagasaki). — Bleeker, Verh. Batav. Genoot. (Nat. Sch. Japan), deel 25, 1853, p. 15. — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 347 (Japan).

Acanthurus scalprum (Langsdorf) Valenciennes, l.c. (name in synonymy).

X Asurus scalprum Jordan and Fowler, Proc. U. S. Nat. Mus., vol. 25, 1903, p. 553–6 (Tokyo, Misaki, Wakamoura).

, Amblycirrhites arcatus Bleeker, Atlas Ichth. Ind. Neerl., vol. 7, pl. (25) 303, fig. 3, 1873-76.

Paracirrhites arcatus Bleeker, Atlas Ichth. Ind. Neêrl., vol. 8, p. 114, 1876-77 (Celebes; Ternate); (Rech. Faune Madagascar, pt. 4, p. 93, 1875 (reference); Verh. Kon. Akad. Wet. Amsterdam, vol. 15, (Cirrit.), p. 8 (Celebes; Ternate);

Woodwhites arcates Veale. Decas. Pap. Bishop Mus., vol. 1, no. 3, p. 79, 1900 (1901) (Guam); vol. 1, no. 5, pp. 16, 17, 1903 (Honolulu). — Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 491, 1902 (1903) (Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 527, 1902 (1904) (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 450, pl. 69, 1902 (1904) (Honolulu; Hilo; Kailua).

(— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 345, 1927 (Richardson's record). — Fowler, Copeia, no. 112, p. 83, nov. 20, 1928 (Hawaii); Bull. Bishop Mus., no. 22, p. 27, 1925 (Honolulu). — Fowler and Ball, Bull. Bishop Mus., no. 26, p. 16, 1925 (Ocean Island). — Fowler, Bull. Bishop Mus., no. 38, p. 18, 1927 (Palmyra Island); Enem. Bishop Mus., vol. 10, p. 239, 1928 (Honolulu, Honaunau, Palmyra, Guam, Ocean and

Genus Prionurus Lacépède.

Prionurus Lacépède, Ann. Mus. Hist. Nat. Paris, Tome 4, 1804, p. (205) 211. Type Prionurus microlepidotus Lacépède, monotypic.

Acanthocaulis Waite, Records Austral. Mus., vol. 3, 1900, p. 206. Type Prionurus microlepidotus Lacépède, virtually as Acanthocaulis Waite proposed to replace Prionurus Lacépède.

This genus may be readily known

X Xesurus Jordan and Evermann, Rep. U. S. Fish Comm., pt. 21, 1895 (1896), p. 421. Type Prionurus punctatus Gill, orthotypic.

This genus is known by the presence of 3 to 6 caudal bucklers each side. In other respects it is greatly like Naso.

Besides the species below several others have been described from the Eastern Pacific.

Society Islands); Proc. Acad. Nat. Sci. Philadelphia, p. 659, 1929 (1930) (Hawaiian Islands). — Borodin, Bull. Vanderbilt Mar. Mus., vol. 1, art. 2, p. 55, 1930 (Oahu). — Fowler, Mem. Bishop Mus., vol. 11, no. 5, p. 339, 1931 (Honolulu); vol. 11, no. 6, p. 423, 1934 (Manco Island, Port Moresby, South east New Guinea; Hawaiian Islands).

? Cirrhites vittatus Cuvier, Règne Animal, ed. 2, vol. 2, p. 146, 1829 (on Renard, Poiss. Moluques, vol. 1, XVIII, p. 102, 1718-19, type locality, Moluccas).

Naso tripeltes (Valenciennes).

Naseus tripeltes Valenciennes, Hist. Nat. Poiss., vol. 10, 1831, p. ~~203~~ 276 (on Leuning, Renard and Valentyn). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 349 (copied).

A doubtful nominal form, said to have the forehead with a produced horizontal horn and 3 bony, carinated caudal bucklers.

Depth 2 1/3 to 2 2/3; head 2 9/10. Snout 3 1/8 to 3 1/5 in head from snout tip; eye 4 1/2 to 5 1/2, 1 1/4 to 1 1/3 in snout; maxillary reaches 3/5 to 4/5 in eye, expansion 1/3, length 2 to 2 1/5 in head from snout tip; 2 large upper front canines and enlarged lateral mandibular teeth; interorbital 5, concave.

Scales 50 in lateral line; 6 above, 11 or 12 below. Muzzle scaleless. Bases of soft vertical fins and pectoral with small scales. Lateral line axial along side of body.

D. X, 11, third spine 2 3/4 in total head length, first ray 1 2/5 to 1 3/5; A. III, 6, second spine 2 2/5 to 2 3/5, first ray 1 2/3 to 1 7/8, caudal

1 3/4, hind edge convex; least depth of caudal peduncle 2 3/5; pectoral 1 2/5 to 1 1/2, rays I, 4, VII; ventral rays I, 5, fin 2 in total head.

In life olive, with narrow red longitudinal lines. Along lateral line posteriorly broad milk white band, and tinged with mauve posteriorly. Head reddish purple, deep red along upper maxillary edge, preorbital and side of lower jaw. Orange spot, margined with scarlet, on lower border of preopercle. Posterior to lower edge of preopercle blue, with 3 transverse orange bands edged with scarlet. Front edge of muzzle olive. Broad, short, oblique green bar from upper hind eye edge,

bordered with light blue, red and orange lines. Edge of orbit blue green, iris red. Chest mauve. Fins all blue green.

Mauritius, East Indies, Melanesia, Polynesia, Hawaii. In preserved materials two forms appear, also said to obtain in life. One with the white posterior axial streak or band of the lateral line. In others this white band does not occur.

A. N. S. P., Nos. 16021 and 16022.
Tahiti, Andrew Garrett.

A. N. S. P., Nos. 28111 to 28113.
Hawaiian Islands. Bureau of
Fisheries.

Paracirrhites forsteri (Schneider)

Grammistes forsteri Schneider, Syst. Ichth., p. 191, 1801 (type locality, Saint Christine or Waitaho, Marquesas Islands).

with golden rounded spots, usually
smaller towards abdomen.

h. Some brown dots on vertical fins. concatenatur

hh. Fins greenish, spines blackish, rays
variegated with dusky. Lopsii

Cirrhites forsteri Günther, Cat. Fish. Brit. Mus., vol. 2, p. 71, 1860 (Mauritius, Cape Seas, India). — ~~Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, March 1862 (reference)~~ — Playfair, Fishes of Zanzibar, p. 46, 1866 (Great Comoro). — Kner, Sitzg. Ber. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 57, pt. 1, p. 308, 1868 (Savay). — Schmeltz, Cat. Mus. Godeffroy, No. 4, p. 15, 1869 (Savay).

— Klunzinger, Verh. Zool. bot. Gesell. Wien, Vol. 20, p. 797, 1870 (Red Sea). — Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 69, pl. 49, fig. A, 1874 (Polynesia; Tahiti; Hawaii). — Day, Fishes of India, pt. 1, p. 144, pl. 35, fig. 1, 1875 (Andamans). — Streets, Bull. U. S. Nat. Mus., No. 7, p. 73, 1877 (Honolulu).

Amblycirrhites forsteri Bleeker,
Verslag. Kon. Akad. Wet. Amsterdam,
ser. 2, vol. 2, p. 299, 1868 (Waigiu).

Paracirrhites forsteri Bleeker, Rech. Faune de Madagascar, Pt. 4, p. 93, 1874 (reference); Atlas Ichth. Ind. Neerl., vol. 8, p. 144, pl. (71) 349, fig. 5, 1876-77 (Celebes, Sangir, Amboyna, Banda, Ternate, Waigiu). — Veale, Occas. Pap. Bishop Mus., vol. 1, no. 5, pp. 17, 19, 1902 (Honolulu). — Bryan and Herre, Occas. Pap. Bishop Mus., vol. 2, no. 1, p. 131, 1902 (1903) (Marcus Island). — Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 490, 1902 (1903) (Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 527, 1902 (1904) (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 450, pl. 67, 1903 (1905) (Honolulu; Hilo). — Veale, Occas. Pap. Bishop Mus., vol. 4, no. 1, p. 51, 1906 (Mukaw-hiva).

pp. X, 25. Type Acarus rivulatus Forskål = Acarus rigens Forskål, alternate name, tautotypic.

Centrogaster Houttuyn, Verh. Holl. Maatsch. Haarlem, 20, deel 7, 1782, p. 333. Type Centrogaster fuscescens Houttuyn, designated by Jordan and Evermann, Genera of Fishes, Pt. 1, 1917, p. 44.

Amphacanthus Schneider, Syst. Ichth. Bloch, 1801, p. 206. Type Amphacanthus guttatus (part) Schneider = Teuthis javus Linnaeus, latter designated by Desmarest, Encycl. Hist. Nat. Rept. Poiss, Chenu, 1874, p. 240.

Amphacantus Cuvier, Règne Animal, vol. 2, 1817, p. 330. Type Teuthis javus Linnaeus.

Buro (Commerson) Lacépède, Hist. Nat. Poiss, vol. 5, 1803, p. 421. Type Buro lunnens Lacépède, monotypic.

— Fowler, Copeina, No. 112, p. 83, Nov. 20, 1922 (Hawaii); Bull. Bishop Mus., No. 22, pp. 11, 27, 1925 (Guam; Honolulu). — Fowler and Ball, Bull. Bishop Mus., No. 26, p. 16, 1925 (Ocean Island, Laysan Island). — Fowler, Bull. Bishop Mus., No. 38, p. 18, 1927 (Midway Island); Mem. Bishop Mus., Vol. 10, p. 239, 1928 (Honolulu, Marcus Island, Nukuhiva, Ocean Island, Guam, Fiji, Hawaii, Society Islands, Elon Island); Proc. Acad. Nat. Sci. Philadelphia, p. 656, 1929 (1930) (Honolulu); Mem. Bishop Mus., vol. 11, No. 5, p. 339, 1931 (Honolulu); vol. 11, No. 6, p. 423, 1934 (Duke of York Island; Hawaiian Islands).

— Barnard, Ann. South African Mus., Vol. 21, pt. 2, p. 450, Oct. 1927 (Cape Seas).

Family Siganidae.

Body oblong or ellipsoid and compressed. Caudal pedunclc unarmed. Mouth small. Teeth uniserial, trenchant, serrated incisors. Palate edentulous. Gill membranes not united, attached to isthmus. Pseudobranchiae well developed. Branchiostegals 5. Air vessel large, forked before and behind. Intestine with round convolution. Pyloric coeca 5 or 6. Vertebrae 23, of which 13 caudal. Scales very small, cycloid. Lateral line complete. Dorsal single, very strong spines 13, rays 10. Anal with 7 well developed spines, rays 9. Caudal emarginate. Ventrals thoracic, with an outer and inner spine and 3 soft rays between.

Indo-Pacific. Herbivorous. A single genus. Easily distinguished from all the other fishes of the series here studied by the increased small and ventral spines.

— Pöhl, Cat. Mus. Godeffroy, ho. 7, p. 42, 1879 (Hawaii). — Macleay, Proc. Linn. Soc. New South Wales, vol. 7, p. 248, 1882 (New Guinea).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, p. 502, 1900 (Honolulu). — Steindachner, Denkss. Akad. Wiss. Wien, math.-naturw. Kl., vol. 70, p. 90, 1901 (Honolulu).

Cirrhites forsteri Pöhl, Cat. Mus. Godeffroy, ho. 9, p. 29, 1884 (Hawaii).

Cirrhitus forsteri Borodin, Bull. Vanderbilt Mar. Mus., vol. 1, art. 3, p. 85, 1932 (Suva, Viti Levu, Fiji). Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, March 1862 (reference). —

Liganiter Fowler, Journ. Acad. Nat. Sci. Phila., vol. 12, series 2, 1904, p. 546. Type Chaetodon canaliculatus Mungo Park, orthotypic.

Lo Veale, Occas. Pap. Bishop Mus., vol. 4, no. 1, 1906, p. 71. Type Amphacanthus vulpinus Schlegel, monotypic.

Burones Rafinesque, Analyse de la Nature, 1815, p. 88. Type Buro brunneus Lacépède, virtually as Burones Rafinesque proposed to replace Buro Lacépède.

Characters of the genus in that of the family.

We have admitted the arrangement of species grouped primarily on color pattern, following Günther, as we believe this more closely expresses phylogeny than structural characters.

Perca taeniata (Forster) Schneider, Syst. Ichth. Bloch, p. 191, 1801 (name in synonymy). — Lichtenstein, Verz. Animal., Forster, p. 224, 1844.

Sparus pantherinus Lacépède, Hist. Nat. Poiss., vol. 4, pp. 53, 160, pl. 6, fig. 1, 1802 (type locality, "le grand Océan equinoxial" = Indo-Pacific).

Cirrhites pantherinus Cuvier, Hist. Nat. Poiss., vol. 3, p. 70, 1829 (Mauritius). — Lesson, Voy. Coquille, Poiss., vol. 2, p. 225, pl. 22, fig. 1, 1830.

— Bleeker, Nat. Tijdr. Ned. Indië, vol. 2, p. 232, 1851 (Banda).

Gerres tambervillae J. W. Bennett, Fishes of Ceylon, pl. 27, 1834 (type locality, Ceylon (? error).

Perca cruentata Günther, Cat. Fish. Brit. Mus., vol. 2, p. 71, 1860 (type locality, India, ? name in text).

depth 2 1/2 to 2 4/5; head 2 3/4 to 3, width 2 to 2 3/4. Snout 3 1/10 to 3 1/3 in head from snout tip; eye 5 1/4 to 6 1/5, 1 3/4 to 1 4/5 in snout, subequal with interorbital; maxillary reaches 1/2 to 4/7 in eye, expansion 1 1/4 to 1 2/5, length 2 1/6 to 2 1/3 in head from snout tip; 2 upper front canines and enlarged teeth along sides of mandible; inner band of villeform teeth in each jaw and patch of same on vomer, none on palatines or tongue; interorbital 5 2/5 to 6, flattened or slightly concave; hind preopercle edge minutely serrate. Gill rakers 6 + 11 on 12, short spinescent tubercles, 2/5 of gill filaments, which 1 4/5 in eye.

Scales 46 to 47 in lateral line to caudal base; 6 above, 11 or 12 below, 12 or 13 predorsal forward to occiput; 5 enlarged rows on cheek with minute basal scales, likewise about large scales on opercle and over most of those of head. Suprascapula entire or feebly serrated. Scales on body well adherent, in longitudinal rows parallel with lateral line except in convergence behind. Pectorals basally of vertical fins with small scales. Scales with 7 or 8 basal radiating striae; circuli very fine.

D. X, 11, I, third spine 2 2/5 to 3 in total head length, first

ray 1 3/4 to 2 2/5; D. III, 6, I, second spine 2 2/5 to 3 1/8, first ray 1 4/5 to 2 1/4; caudal 1 3/5 to 2 1/8, convex behind; least depth of caudal peduncle 2 3/5 to 2 3/4; pectoral 1 2/5 to 1 7/8, rays I, 6, VI; ventral rays I, 5, fin 1 3/4 to 2 in total head length.

Brownish yellow. Broad pale or whitish band along bases of dorsals, bounded posteriorly below by broad black band extending out over upper median caudal rays basally. Broad whitish axial band from above pectoral to caudal base. Lower half of side with 6 or 7 pale brown to yellow parallel longitudinal narrow bands.

Head and predorsal, region about pectoral base, chest and breast with very variable conspicuous ocellated dark brown spots, brilliant red to dark red in life with ground color mauve to dull olive. Iris red in life, fades brown. Iris brownish, upper more or less red and lower with orange tints in life.

Red Sea, East Africa, Cape Province, Mauritius, India, Ceylon, Andamans, East Indies, Melanesia, Micronesia, Polynesia, and Hawaii. The living fish truly a beautiful fish

U. S. N. M., No. 28200. Hawaiian Islands. U. S. Fish Comm.

U. S. N. M., Nos. 29621 to 29625. Honolulu. D. S. Jordan and J. O. Snyder.

Paracirrhites hemistictus (Günther)

Cirrhites hemistictus Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 69, pl. 50, fig. B, 1874 (type locality, Kingsmill Islands; Society Island). — Schmeltz, Cat. Mus. Godeffroy, No. 6, p. 13, 1877 (Raiatea).

Paracirrhites hemistictus Fowler, Mem. Bishop Mus., vol. 10, p. 238, 1928 ("Sandwich Islands").

between, but larger and more crowded on head and thorax. corallinus

jj. dusky shoulder blotch equals eye; brown, minutely dotted all over with white, dots invading dark shoulder blotch. tutor

bb. Depth 2 1/3 to 3.

k. Caudal deeply emarginate or forked.

l. Back with rounded whitish dots which become oblong on sides and much smaller than spaces between. oramin

ll. Brown (in life body covered with small, close set, yellow spots or blotches, equal or larger than spaces between); dorsal anal and ventral blotched with dusky. rostratus

kk. Caudal scarcely or but slightly emarginate.

m. Brown, dotted all over whitish, dots very small and extend on dorsal and anal, caudal and paired fins brown. tumifrons

Depth 2 $\frac{7}{8}$; head 2 $\frac{3}{4}$, width 2. Snout 3 in head; eye 6 $\frac{3}{5}$, 2 $\frac{1}{4}$ in snout, 1 $\frac{1}{5}$ in interorbital; maxillary reaches $\frac{1}{4}$ in eye, expansion 1 $\frac{1}{4}$ in eye, length 2 $\frac{1}{2}$ in head; teeth villiform, in bands in jaws, outer enlarged series of conic ones, pair of upper canines and pair of antero-lateral canines subequally large; vomer with patch of small, fine teeth, none on palatines; interorbital 6 $\frac{1}{5}$, slightly concave; hind preopercle edge feebly denticulate, several above angle. Gill rakers 6 + 12, short tubercles, 2 $\frac{1}{2}$ in gill filaments, which 1 $\frac{1}{5}$ in eye.

Scales 45 + 5 in lateral line; 6 above, 12 below, 12 predorsal; 6 rows of large scales on cheek, with minute

ones interspersed. Scales with 9 to 12 basal radiating striae, edge entire; circuli very fine, none apical. Scales in lateral line small, with small simple tubes.

D. X, 11, I, third spine 3 1/4 in head, first ray 2 2/5; A. III, 6, I, second spine 4, first ray 2 1/4; caudal 1 4/5, hind edge truncate, convex as expanded; pectoral 1 3/5; ventral 2 1/10.

Brownish, color of back well contrasted with paler under surface of head, belly and tail, by white band of 1 or 2 scales in width, extending from pectoral base to below end of lateral line on caudal base; on head reflected and observed as broad pale area across cheek and opercle. Back with traces of 7 rather

obscure, deep brown saddles,
much wider than interspaces.
Round deep brown spots
crowded along back above pale
lateral band, though most
begin about opposite end of
pectoral, larger and most
conspicuous about lateral
line below soft dorsal.
Along lower boundary of whitish
lateral band some, obscure
brownish spots. Fins largely
uniform pale brownish, though
a few obsolete dark spots
about middle of caudal base
and caudal fin with narrow
dark brown edges above and
below. Also traces of some
obscure dark dots along
soft dorsal base. Iris
brownish.

Polynesia, Hawaii?

described above from the only example I have seen.

M. C. Z., one example. "Sandwich Islands." Andrew Garrett. Length 194 mm.

Paracirrhites polystictus (Günther)

Cirrhites polystictus Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 70, pl. 50, fig. a, 1874 (type locality, Kingsmill Islands; Tahiti). — Schmeltz, Cat. Mus. Godeffroy, No. 6, p. 13, 1877 (Raiatea).

Paracirrhites polystictus Fowler, Bull. Bishop Mus., No. 22, p. 10, 1925 (Guam); Mem. Bishop Mus., vol. 10, p. 238, 1928 (Guam; Tuamotus); Proc. Acad. Nat. Sci. Philadelphia, p. 656, 1929 (1930) (Guam); Mem. Bishop Mus., vol. 11, No. 5, p. , 1931 (reference).

gg. Dark shoulder blotch about size of eye.

i. Brownish olive, with small, scattered, roundish, whitish spots on back and sides, which much smaller than interspaces between. albopunctatus

ii. Whole head, trunk, tail and caudal base covered with minute close set whitish dots. punctatissimus

ff. Fins immaculate; body red, with numerous undulated and reticulated transverse longitudinal short blue lines. labyrinthoides

dd. Brown, with vermiculated bluish lines on head and whole body, except belly; caudal dotted all over with brown. vermiculatus

cc. Caudal deeply emarginate or forked.

j. No dark shoulder blotch; orange, with small sky blue dots on body and bases of caudal and anal; dots very small, much smaller than interspaces

Depth 3 1/5; head 2 7/8, width 2 1/10. Snout 3 in head from upper jaw tip; eye 6 1/4; maxillary reaches 1/8 in eye, expansion 1 1/8, length 2 1/2 in head from snout tip; inner pair of upper canines longest; interorbital 6, slightly concave; hind preopercle edge with few obsolete or minute serrae above obtuse angle. Gill rakers 6+12, short knobs, 1/2 of gill filaments, which 1 2/5 in eye.

Scales 5/+4 in lateral line; 6 above, 11 below; 12 large predorsal scales to occiput; 5 rows of enlarged scales on cheeks with minute basal auxiliary scales; Scales in

longitudinal rows parallel with lateral line, except convergence posteriorly. Small scales on soft vertical fins and pectoral basally. Scales with 6 basal radiating striae; circuli very fine, none apical.

D. X, 11, second spine $3\frac{3}{5}$ in total head length, first ray $2\frac{2}{5}$; A. III, 6, I, second spine 3, first ray $2\frac{1}{10}$; caudal $1\frac{3}{4}$, hind edge convex; least depth of caudal peduncle $2\frac{4}{5}$; pectoral $1\frac{1}{2}$, rays I, 6, VII; ventral rays I, 5, fin 2 in total head length.

Brownish, body with darker, close set spots, rather regular and but slightly variable, on abdomen and lower surfaces

largely forming longitudinal rows, which extend along junctures of scales. Fins deep brown, showing traces of spots, except uniform brown pectoral. Pectoral with many small dark axillary spots. Traces of very obscure spots on head.

U. S. N. M., No. 83003. Paamotu. Wilkes Exploring Expedition. Length 220 mm.

Paracirrhites guichenoti (Sauvage)

Cirrhites guichenoti Sauvage, Bull. Soc. Philom., Paris, ser. 7, vol. 5, p. 221, 1880 (type locality, Réunion); Hist. Nat. Madagascar, Poiss., p. 212, (514), pl. 23, fig. 1, a-b, 1891 (type).

Depth 3; head 2 9/10. Snout 2 1/2 in head; eye 4 3/4, 2 in snout; maxillary reaches 9/10 to eye, expansion 2 2/3 in eye, length 3 in head; teeth in jaws very strong, and on vomer, but none on palatines; interorbital with eye impinging in profile; preopercular edge strongly denticulate.

Scales 47 in lateral line, 4 above, 13 below; 5 rows on cheeks below eye, with lowest row on preopercular flange. Caudal base scaly. Scales on breast, chest and prepectoral little smaller.

D. X, 13; fourth spine 2 in head, first ray 1 3/4 ~~in head~~; A. III, 7, second spine 2, second ray 2; caudal 1 3/4, little convex behind; least depth of caudal peduncle 3 1/4; pectoral 2 3/5 in fish without caudal,

rays 8, VII, reaches base of second anal spine; ventral rays I, 5, fin 1/3/5 in head.

Brown, with 3 rows of large black blotches, one along dorsals, median at beginning and lowest below lateral line. Black spot at top of opercle. Three blackish lines radiate down from eye. Blackish band in pectoral base. Two blackish spots on caudal peduncle. Dorsals spotted with black. Length 140 mm. (Lamoage.)

Reunion.

Paracirrhites fasciatus (Bennett)

Cirrhites fasciatus Bennett, Zool. Journ., vol. 4, p. 39, 1828 (type locality, Hawaiian Islands).

Cirrhitus fasciatus Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 107, march 1862 (reference).

Cirrhites cinctus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 73, 1860 (type locality, Hawaiian Islands; Madagascar; Mauritius); Journ. Mus. Godeffroy, vol. 2-3, pts. 5-6, p. 72, figs. A-B, 1874 (Hawaiian Islands). — Steindachner, Denks. Akad. Wiss. Wien, math.-naturw. Kl., vol. 70, p. 490, 1901 (Honolulu).

slightly less than diameter of pupil. Dorsals clouded with opaque white on basal half of membrane. Anal similar, but markings more nearly continuous in central bar. Caudal like body, with single spine. Pectoral with slight shade of straw color.

A1197 to A1199. Dowowra Island, Patiente Strait, Dutch East Indies. December 2, 1909. Length 360 to 362 mm.

A903. Limbe Strait, Celebes. November 10, 1909. Length 293 mm.

12237. Hokuho, Hoo Wan, Formosa. June 29, 1910. Length 270 mm.

We also append the following two species, which are very doubtful:

Paracirrhites cinctus Veale, Occas. Pap. Bishop Mus., vol. 1, no. 5, pp. 16, 19, 1902 (Honolulu). — Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 491, 1902 (1903) (Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 527, 1902 (1904) (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 449, pl. 68, 1903 (1905) (Hilo; Honolulu). — Fowler, Copeia, no. 112, p. 82, Nov. 20, 1922 (Hawaii); Bull. Bishop Mus., no. 38, p. 18, 1927 (Christmas Island); Mem. Bishop Mus., vol. 10, p. 240, 1928 (Honolulu, Hawaiian Islands, Kauai, Society Islands). — Pietschmann, Bull.

both dorsal and anal hyaline. Anal like dorsal, but with narrower bars. Caudal like body. Pectorals slightly straw-color terminally, slaty at bases.

A 805. Zamboanga market. October 6, 1909. Length 327 mm.

A 804. Zamboanga market. October 9, 1909. Length 320 mm.

A 1364, A 1377 to A 1380. Bawa Island, Gulf of Boni, Dutch East Indies. December 17, 1909. Length 237 to 254 mm. Faded pale gray and distinguished only by numerous narrow bars across back down to middle of side; about $\frac{1}{3}$ width of interspaces and bar with interspace

Bishop Mus., No. 73, p. 15, 1930 (Honolulu). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, p. 656, 1929 (1930) (Hawaiian Islands); Mem. Bishop Mus., vol. 11, No. 5, p. 340, 1931 (reference); vol. 11, No. 6, p. 423, 1934 (Hawaiian Islands).

9914. Imamucan Bay, Mindoro.
August 8, 1908. Length 135 mm.
Only a left rudimentary caudal spine.
5782, 12237 and 12238 [1977], 16935 to
16938, 19586. Vinalac Island.
September 22, 1909. General color dark
slaty, apparently nearly uniform.
In fading back becomes lavender gray
and belly paler; upper portion of
side and back, as well as top of
head, then shows abundant mottling
of paler spots and short vertical
bars on middle of side and on head
spots round. Dorsals similar to body
in color, crossed by 3 or 4 slightly
oblique hyaline bars, very irregular
on spinous portion. Margins of

Depth 2 3/4 to 2 7/8, head 2 7/8 to 3 1/2, width 1 3/4 to 2 1/4. Snout 3 to 3 1/4 in head; eye 4 to 4 3/4, 1 1/3 to 1 1/2 in snout, greater than to equal to interorbital; maxillary reaches eye, expansion 2 to 2 1/2 in eye, length 3 to 4 in head; interorbital 4 1/3 to 5 3/4, little concave, slightly impinging on upper profile. Gill rakers 4+12, compressed, 2 or 3 of upper and lower rudimentary; length 1 1/4 in gill filaments.

Scales 41 or 42 + 4 or 5 in lateral line; 5 above, 12 below; 7 predorsal to occiput; 5 rows on cheek below eye. Scales on chest, breast and prepectoral small, and all fins with small scales basally.

D. X, 14, I, fourth spine 2 1/3 to 2 3/4 in head, first branched ray 1 2/5 to 2; A. III, 6, I, second spine 2 1/8 to 3, first branched ray 1 1/6 to 1 7/8; caudal 1 3/5 to 1 2/3, truncate or hind edge little convex; pectoral 1 1/10 to 1 1/8, rays I, 6 or 7, VI; ventral rays I, 5, fin 1 1/2 to 1 7/8 in head.

Head and body pale brown, usually nearly white. On back 5 broad dark brown bands, greatly wider than pale interspaces. Head dark above and sides more or less mottled pale and dark. Dark streaks below eye and dark blotch on opercle. Fins brownish. Lips pale. Fins very light to pale brownish.

Polynesia, Hawaii.

U. S. N. M., No. 51041. Hawaiian Islands. U. S. Fish Comm. (0319). Length 91 to 113 mm. Three examples.

U. S. N. M., No. 55440. Honolulu. Bureau of Fisheries. Length 63 to 100 mm. Four examples.

Paracirrhites murrayi (Regan)

Cirrhites murrayi Regan, Proc. Zool. Soc. London, ~~1908~~ 1, p. 404, pl. 66, fig. 6, 1909 (type locality, Christmas Island, Indian Ocean). — Fowler, Mem. Bishop Mus., vol. 10, p. 240, 1928 (reference).

Depth 2 1/3 to 3; head 3 1/4 to 3 1/2. Snout 3 in head; eye 3 1/4 to 4, subequal or longer than eye, twice interorbital; maxillary reaches 2/5 to 1/2 in eye, length 2 3/4 in head; front nostril with fringed tentacle; eye invading upper profile of interorbital; hind preopercle edge well serrated.

Scales 44 to 46 in longitudinal

Naso thynnoides (Valenciennes).

Axinurus thynnoides Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 299 [221], plate 293. Dorey Harbor, New Guinea. — Valenciennes, Regne Animal Cuv. Ed., Poiss., 1836, plate 74, fig. 3.

Naseus thynnoides Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 2, no. 7, 1857, p. (5) 5. (Amboina). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 355 (Amboina)

Naseus tapeinosoma Bleeker, Nat. Tijds. Ned. Indië, deel 6, 1854, p. 457. Amboina. — Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 2, no. 7, 1857, p. 5 (Amboina). — Bleeker, Ned. Tijds. dierk., deel 1, 1863, p. 264 (Attapupu, Timor). — Weber, Siboga-Expd., band 65, 1913, p. 621 (Manado and Banda).

Priodon tapeinosoma Bleeker, Nat. Tijds. Ned. Indië, deel 6, 1854, p. 494 (Amboina).

series, 4 rows on cheek (figure shows 6). dorsal and caudal bases scaly. Scales little smaller on chest, breast and prepectoral. Lateral line complete, axial on side.

D. X, 12, membranes of spinous dorsal deeply notched and produced into penicillated lobe behind each spine, fifth spine 2 in head, first ray 1 1/10, little produced; A. III, 6, second spine 1 2/3, caudal 1 1/2, truncate; least depth of caudal peduncle 2 4/5, pectoral 1, lower 6 rays simple, ventral 1 4/5 in head.

Reddish, with 6 blackish vertical bars, each of which is usually broken up into 3 or 4 oblong spots. Blackish

spots on head and on spinous dorsal fin. Length 78 mm.
(Regan.)

Christmas Island, Indian Ocean.

Paracirrhites melanotus (Günther

Cirrhites melanotus Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 72, pl. 52, fig. C, 1874 (type locality, Raiatea; Society Islands). — Schmeltz, Cat. Mus. Godeffroy, No. 6, p. 13, 1877 (Pelew Islands); No. 7, p. 42, 1879 (Society Islands). — Pöhl, Cat. Mus. Godeffroy, No. 9, p. 29, 1884 (Mortlocks).

Paracirrhites melanotus Fowler and Ball, Bull. Bishop Mus., No. 26, p. 16, 1925 (Wake Island). — Fowler, Mem. Bishop Mus., vol. 10, p. 239, 1928 (Wake Island; Society Islands); vol. 11, No. 5, p. 340, 1931 (reference).

Naso punctulatus (Valenciennes).

Naseus punctulatus Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. ~~413~~ 289 (in Leuning).

Shorter than Naso-olivaceus, profile ascending in rounded curve, with distinct tuberosity. Caudal emarginate, lobes not ending in filaments. Body blue, nearly black, with scattered small white or bluish dots. Caudal plate colorless. Dorsal with blue basal line. Anal with blue line and red line. (Valenciennes.)

A doubtful species, never established.

Depth 2 1/4 to 2 1/2; head 2 7/8 to 3, width 1 2/3 to 2 1/10. Snout 3 1/3 to 4 in head; eye 3 to 3 1/3, little larger to subequal with snout, greater than interorbital; maxillary reaches eye, expansion 2 1/2 to 2 4/5 in eye, length 2 1/2 to 2 3/5 in head; teeth fine, conic, close set, in narrow bands in jaws, above 2 close set canines each side anteriorly, sometimes single; below 1 to 4 close set canines each side, sometimes variously asymmetrical; interorbital 5 1/6 to 5 1/4, slightly concave; hind preopercle edge with 7 to 9 rather large serrae. Gill rakers 5 + 11, lanceolate, 1 1/4 in gill filaments, which 1/3 of eye.

Scales 34 to 37 + 2 or 3 in lateral line; 5 or 6 above;

10 or 11 below, 7 predorsal. Scales on cheek minute. Small scales on all fins basally. Scales with 6 or 7 marginal parallel or radiating basal striae; circuli very fine. Tubes in lateral line small, simple, little exposed.

D. X, 13, I, third spine 2 1/5 to 2 3/4 in head, first ray 2 to 2 1/6; A. III, 9, I, second spine 2 to 2 1/8, second ray 1 3/4 to 1 7/8; caudal 1 2/5 to 1 1/2, convexly rounded behind; least depth of caudal peduncle 2 1/4 to 2 2/5; pectoral 1 1/10 to 1 1/8, rays I, 5, VII; ventral rays I, 5, fin 1 2/5 to 1 1/2 in head.

Back blackish brown, sharply defined forward from occiput to soft dorsal base, also including bases of both dorsals.

harrow superciliary border ~~&~~
and broader infrapostorbital
border of blackish brown. Dusky
spot on upper lip above and
on lower lip below symphysis.
Terminal portions of dorsals
and most fins whitish. Body
otherwise, including median
longitudinal area of interorbital,
yellowish white. Iris silvery
white.

Melanesia, Micronesia, Polynesia.

Genus Isobuna Jordan and Herre

Isobuna (Jordan) Jordan and Herre, Proc. U. S. Nat. Mus., vol. 33, p. 158, 1907. (Type Paracirrhites japonicus Tilesius, orthotypic.)

Body oblong, compressed. Head large. Teeth in jaws, on vomer and palatines; 2 small front upper canines. Preopercle denticulate along edge. Scales large, strongly toothed. Cheeks with large scales. Dorsal with 10 spines and 15 rays. Anal with 3 spines and 7 rays. Pectoral with 6 or 7 lower rays not thickened, simple.

Known by its large rough scales. One species.

Isobuna japonica (Steindachner and Doderlein)

Paracirrhites japonicus (Steindachner) Steindachner and Doderlein, Denks. Akad. Wiss. Wien, ~~vol. 48~~, math.-naturw. Kl., vol. 48, pt. 1, p. 25, 1884 (type locality, Japan). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 84, 1901 (reference).

Isobuna japonica Jordan and Herre, Proc. U. S. Nat. Mus., vol. 33, p. 158, 1907 (copied). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, art. 1, p. 186, 1913 (reference).

Genus Cirrhitoidea Jenkins

Cirrhitoidea Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 489, 1902 (Sep. 23, 1903). (Type Cirrhitoidea bimaculata Jenkins, monotypic.)

Body ellipsoid, compressed. Head large, pointed. Snout conic. Eye moderate, high, before middle in length of head. Mouth small. Maxillary reaches eye. Jaws with narrow band of small, canine-like teeth. Vomer with teeth, none on palatines. Preopercle edge finely denticulate. Head and body well scaled. Scales rather large, cycloid. Lateral line complete, axial alongside of body. Dorsals continuous, with 10 spines and 12 branched

1260

11327. San Roque, Leyte. July 29, 1909.

Length 185 mm.

1 example. Subic Bay. January 7, 1908.

Length 143 mm.

5477. Tacloban market, Leyte. April 12, 1908. Length 134 mm. Ground color sepia, with round and ovate gray spots on back and sides; lower side with 10 alternating gray and primrose yellow stripes, narrower than pupil, fading out on lower side and belly. Dorsals dusky cinnamon, tips of spines hyaline. Anal dusky ochraceous buff. Caudal clove brown. Pectoral hyaline. Ventral white, membranes hyaline.

12043 to 12046. Sandakan, Borneo. March 2, 1908. Length 164 to 188 mm.

5053. Sibutu Island, Borneo. February 29, 1908. Length 162 mm.

rays. Anal with 3 spines and 6 or 7 branched rays. Caudal small. Pectoral with upper rays branched and longer, lower 5 simple. Ventral inserted close behind pectoral base.

Related to Dysichthys Bleeker, but differing in its much shorter snout.

Cirrhitoidea bimacula Jenkins

Cirrhitoidea bimacula Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 488, fig. 36, 1902 (1903) (type locality, Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 448, fig. 197, 1903 (1905) (types).

— Fowler, Bull. Bishop Mus., No. 22, p. 27, 1925 (Honolulu); Mem. Bishop Mus., vol. 10, p. 236, 1928 (Honolulu; Waikiki; type); Proc. Acad. Nat. Sci. Philadelphia, p. 656, 1929 (1930) (Honolulu); Mem. Bishop Mus., vol. 11, No. 5, p. 338, ~~fig.~~ fig. 2 (variation), 1931 (Honolulu); vol. 11, No. 6, p. 422, 1934 (reference).

20073. Putor River, Mindanao. January 30, 1909. Length 78 mm.

8211 and 14971 [1261]. Refugio Island, Pasacao, Luzon. March 9, 1909. Length 54 to 333 mm.

1 example. River at Pasacao, Luzon. March 9, 1909. Length 50 mm. Generally smoky olive, becoming purplish after death; spots and stripes below somewhat pearly to bluish. Side and top of head with more or less yellow tinge. Median ventral region, from middle of breast backward orange, continued to spinous part of anal. Vertical fins nearly like body color, with more or less orange shades. Pectoral plain dusky, membranes nearly hyaline. Ventral with orange on rays and spines.

5480, 5483 to 5485, 5487 to 5489, 12268, 12269. San Juanico Strait, Leyte. April 13, 1908. Length 123 to 240 mm.

277

Oxyconchites (*Circhitoidea*) *bimaculata* Pietschman, Bull. Bishop Mus., No. 73, p. 15, 1930 (Pearl and Hermes Reef).

membranes hyaline. Ventral display, with bronze shades.

5 examples. Cotabato, below mouth of Mindanao River, Mindanao. May 20, 1908. Length 70 to 105 mm.

5996. Cavite market. December 1, 1908. Length 105 mm.

12807. Little Santa Cruz Island, Zamboanga. May 26, 1908. Length 168 mm.

4 examples. Malampaya River, Palawan. December 26, 1908. Length 59 to 78 mm.

1 example. Malcochin Harbor, Linapacan Island. December 19, 1908. Length 32 mm.

1 example. Manila market. December 12, 1907. Length 100 mm.

2 examples. Mantalay: June 4, 1908. Length 53 mm.
6 examples. Mantahglin Bay, Palawan. April 2, 1909. Length 48 to 53 mm.

9041 and 9042. Tabatas Point, Samar. July 24, 1908. Length 132 to 260 mm:

43501. Philippines. Length 180 mm.

depth 2 1/2 to 3; head 2 1/2 to 2 2/3, width 2. Snout 3 1/6 to 3 1/5 in head; eye 4 to 4 1/5, 1 1/8 to 1 1/4 in snout, greater than interorbital; maxillary reaches eye, expansion 2 to 2 1/4 in eye, length 2 5/6 to 3 in head; lips broad, smooth; bands of fine, simple, conic teeth in each jaw, anterior much broader; small patch of fine teeth on vomer; palatines and tongue toothless; interorbital 6 to 6 1/5, concave. Gill rakers 4 + 10, lanceolate, 1 1/5 in gill filaments, which half of eye.

Tubular scales 39 to 41 + 1 to 4 in lateral line; 3 above, 8 or 9 below; 22 or 23 predorsal; 5 or 6 rows on cheek. Scales

with 7 or 8 basal radiating striae, circuli fine. Tubes in lateral line small, simple, oblique, mostly concealed.

D. X, 12, fifth spine 2 3/4 to 3 in head, first ray 2 1/10 to 2 1/2; A. III, 6 or 7, second spine 2 1/4 to 2 1/3, first ray 2 to 2 1/10; caudal 1 2/5 to 1 3/4, convexly rounded behind; least depth of caudal peduncle 3 to 3 2/5; pectoral 1 to 1 1/6, rays I, 8, 7; ventral rays I, 5, fin 1 3/4 to 1 7/8 in head.

dull brown. Back with 7 darker broad transverse bands, sloping down on sides and below. In each pale

interspace similar duller oblique band. Dn opercle and back at middle of soft dorsal base round deep brown ocellus, little smaller than eye. ∇ fins brownish.

Hawaiian Islands.

Cirrhitoidea

~~Cirrhitus~~ oxyrhynchos (Bleeker)

Cirrhitichthys oxyrhynchos Bleeker, Nat. Tijds. Ned. Indië, vol. 15, p. 205, 1858 (type locality, Goram Island). — Schmeltz, Cat. Mus. Godeffroy, No. 3, p. 8, 1866 (South Seas); No. 7, p. 42, 1879 (Society Islands).

to 2 3/5.

Fluorescens

QQ. Blackish brown; irregularly marbled lighter; depth 2 3/4.

Luridus

JJ. depth 3 4/5; back brownish, body otherwise silvery. Argentens

Cirrhitichthys oxyrhynchus

Günther, Cat. Fish. Brit. Mus., vol. 2, p. 74, 1860 (copied). — Schmelty, Cat. Mus. Godeffroy, No. 4, p. 15, 1869 (Viti Islands). — Bleeker, Atlas Ichth. Ind. Neerl., vol. 7, pl. (25) 303, fig. 4, 1873-77; Verh. Kon. Akad. Wet., Amsterdam, vol. 15, (Cirhit.), p. 13, 1875 (type); Atlas Ichth. Ind. Neerl., vol. 8, p. 146, 1876-77 (type). — Schmelty, Cat. Mus. Godeffroy, No. 6, p. 13, 1877 (Pelew Islands). — Boulenger, Ann. Mag. Nat. Hist., ser. 6, vol. 20, p. 372, 1897 (Rotuma).

Cirrhitus oxyrhynchos Fowler, Mem. Bishop Mus., vol. 10, p. 238, 1928 (compiled); vol. 11, no. 5, p. 339, 1931 (reference).

depth 2 4/5; head 2 1/2. Snout 3 in head; eye 3 3/4, 1 1/3 in snout; maxillary reaches 1/2 in eye, length 2 1/4 in head, from snout tip. Band of upper teeth with an outer enlarged series, without canines; lower teeth with 4 to 6 canines on each mandibular ramus; small teeth in ^-shaped band, also slender band on each palatine; interorbital width 2 in eye; hind preopercular edge with small though conspicuous serrae.

Scales 40 in lateral line to caudal base; 3 rows above, 10 or 11 below.

D. X, 12 or 13, third spine 2 3/4, in head, first branched ray 2 1/4; A. III, 6 or 7, second spine 2 1/10,

Cirrhitichthys oxyrhynchos Bleeker

Cirrhitichthys oxyrhynchos Bleeker, Nat. Tijds. Ned. Indie, vol. 15, p. 205, 1858 (type locality, Goram insul.).

Cirrhitichthys oxyrhynchus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 74, 1860 (copied).

first ray 2; caudal $1\frac{3}{7}$, truncate; least depth of caudal peduncle $3\frac{2}{3}$; pectoral rays $\underline{\underline{I}}, 8, \underline{\underline{V}}$; fin $2\frac{1}{2}$ in fish to caudal base; ventral $2\frac{1}{8}$, rays $\underline{\underline{I}}, \overline{5}$.

Body and fins rosy. Body with 9 or 10 transverse irregular dark bands, several extending on bases of dorsals. Dorsal and anal spines with dark blotches.

(Bleeker.)

East Indies, Micronesia and Polynesia. Although its dimensions are not given by Bleeker his figure measures 50 mm.

Cirrhitus oxycephalus Bleeker

Cirrhites oxycephalus Bleeker, hat. Tijds. Ned. Indie, vol. 8, p. 408, 1855 (type locality, Amboina). — Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 71, 1874 (Bonham Islands, Marshalls).

Cirrhites oxycephalus Fowler, Mem. ~~Bishop~~ Bishop Mus., vol. 10, p. 238, 1928 (copied); vol. 11, no. 5, p. 339, 1931 (reference); vol. 11, no. 6, p. 423, 1934 (reference).

t. divaccous, with several irregular, diffuse, longitudinal yellow lines and with diffuse brownish cross bands extending on dorsal fin. rivulatus

tt. Yellow, with 4 pairs of undulated brownish bands across back. tetrazonus

ttt. Orange, with 30 vertical bluish lines, last of which bent and run longitudinally on posterior part of tail; those above pectoral oblique and those on operc reticulated. doliatus

tttt. Orange, front portion of sides with about 6 undulated blue transverse streaks, hind one with blue longitudinal streaks, which united with hindmost transverse streak; broad brown

Cirrhitichthys oxycephalus Bleeker, Act. Soc. Sci. Ind. Neerl., no. 2, vol. 6, p. 4, 1859 (Moreh, New Guinea).

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 75, 1860 (no locality).

— Bleeker, Verh. Kon. Akad. Wet., Amsterdam, vol. 15, (Cirrhit.), p. 15, 1875 (Buru; Amboina; Goram); Atlas Ichth. Ind. Neerl., vol. 8, p. 147, pl. (75) 353, fig. 1, 1876-77 (same materials).

— Schmeltz, Cat. Mus. Godeffroy, no. 7, p. 42, 1879 (Pelew Islands).

— Wawrae, Fiji, hat. Madagascar, Pict., f. 514, 1891 (reference).

— Whitley, Journ. Pan. Pac. Res. Trust, vol. 1, no. 2, p. 6, Jun.-March 1927 (Fiji). — Barnard, Lond. South African Trust, vol. 21, pt. 2, p. 453, Oct. 1927 (Durban).

— Duncker and Mohr, Mitteil. Naturk. Inst. Hamburg, vol. 44, p. 69, 1931 (Frederick William Harbor, New Guinea).

Depth 3 1/6; head 3. Snout 3 1/3 in head from snout tip; eye 3 1/8, 1 1/6 in snout; maxillary reaches 1/5 in eye, expansion 2, length 2 2/3 in head from snout tip; band of upper teeth with outer enlarged row, none canines; each branch of mandible with 4 or 5 moderate unequal canines; band ∧-shaped teeth on vomer and narrow band on each palatine; interorbital 3/5 of eye, low; preopercular edge strongly serrated.

Scales 40 in lateral line; 4 above, 10 or 11 below; 4 rows on cheek to preopercular flange. Dorsals and caudal scaly basally.

D. X, 12 or 13, fourth spine 1 1/2 in = total head length, first

branched ray 1 1/10; A. III, 5 or 6, second spine 1 2/3, third ray 1 3/4; caudal 1 3/4, convex behind; least depth of caudal peduncle 3; pectoral 1 1/10, rays I, 7, VII; ventral rays I, 5, fin 1 1/2 in total head length.

Body and fins rosy. Body with 5 transverse, broad, partly interrupted brown bands, first at front of first dorsal, last at caudal basally, space between bands each with 2 to 4 brown spots forming intervening series. Two dark bars down from eye. Length 75 mm. (Bleeker.)

Natal, East Indies, Micronesia.

Genus Dyscirrhites Bleeker

Dyscirrhites Bleeker, Act. Soc. Sci. Ind. Neerl. (=Amboina), vol. 2, p. 39, 1857. (Type Dyscirrhites typus Bleeker, monotypic.)

Body elongately compressed, ovoid. Head large, muzzle greatly extended in front. Eye behind middle in head. Maxillary reaches half way to eye. Teeth in jaws small, none on palate. Each front nostril with flap. Preopercle edge denticulate. Scales rather small. Lateral line complete, axial. Dorsal rays 13 or 14. Anal rays 7 or 8.

Easily known by its long pointed muzzle.

Analyses of Species

a.' Scales 51; lind preopercle serrae 9; caudal uniform. typus.

a.² Scales 47; lind preopercle serrae 13; caudal with indistinct bands. morisi.

Oxycirrhites typus Bleeker

Oxycirrhites typus Bleeker, Act. Soc. Sci. Ind. Neerl. (Amboina), vol. 2, p. 40, 1857 (type locality, Amboina). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 76, 1860 (manuritius). — Gill, Proc. Acad. Nat. Sci. Philadelphia, p. 110, march 1862 (reference).

— Bleeker, Rech. Faune Madagascar, pt. 4, p. 93, 1874 (reference); Verh. Kon. Akad. Wet., Amsterdam, vol. 15 (Cirrit.), p. 17, 1875 (type); Atlas Ichth. Ind. Neerl., vol. 8, p. 148, pl. (73) 351, fig. 2, 1876-77 (type). — Sauvage, Hist. Nat. Madagascar, p. 514, 1891 (reference).

depth 4; head 2 1/4. Snout 2 in head; eye 5 3/4, 2 7/8 in snout; maxillary reaches 2/5 to eye, length from snout tip 3 in head; teeth uniform, in bands in jaws, all finely villiform; interorbital 2/3 of eye; hind preopercle edge serrate. Scales 50 in lateral line; 4 above, 11 or 12 below; 3 rows on cheek to preopercle flange. Caudal base scaly.

D. X, 13 or 14, fourth spine 2 4/5 in head, first branched ray 3; A. III, 7 or 8, second spine 3, third ray 3 1/8; caudal 2 1/8, slightly emarginate behind; least depth of caudal peduncle 4 3/4; pectoral 2 1/5, rays II, 6, V; ventral rays I, 5, fin 2 7/8 in head.

Greenish rose, fins golden

yellow. Head with 3 longi-
tudinal brown streaks, which
continuous back on body with
additional dark similar parallel
streak in intervening areas.
Also on body 8 or 9 obliquely
transverse dark brown streaks
cross horizontal ones. Spinous
dorsal with ½ broad undulate
longitudinal brownish violet
streaks. Dorsal rays reticulated
with violet rown streaks.
Length 101 mm. (Bleeker.)
Mauritius, East Indies.

Dyscyrhites morrisi Fowler

Dyscyrhites morrisi Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 359, fig. 109, January 30, 1934 (type locality, Eastern Palawan and vicinity, in 51 fathoms).

Depth 4 2/3; head 2 1/4, width 3 3/5. Snout 1 4/5 in head; eye 5 3/4, 3 in snout, greater than interorbital; maxillary long as eye, expansion 2 1/2 in eye; interorbital 9, with eye impinging on upper profile; 13 long denticles along preopercle edge. Gill rakers 3+11, long as gill filaments or 1/3 of eye.

Scales 45 in lateral line to caudal base and 2 more on

latter; 4 above, 10 below; 7 predorsal forward to occiput; 4 rows on cheek. Scales with 11 or 12 basal and 4 or 5 apical radiating striae; circuli fine, complete.

D. IX, I, 13, I, third spine 2 1/4 in head, membranes rather deeply cleft with small cutaneous flap behind each, first branched ray 2 1/5; A. III, 7, second spine 2 1/2, first ray 3; caudal 1 7/8, well emarginated; least depth of caudal peduncle 4 2/5; pectoral 2 1/2, rays III 6, V, lowest simple and expanded terminally; ventral I, 5, fin 2 2/5 in head.

Largely uniform pale brown. Iris silvery, with grayish above. Vertical fins all generally pale, with rather large scattered

dark blotches.
Philippines.

U. S. N. M., No. 93171 (not 93170 as originally stated). D. 5432, Corandagot Island (NW.), N. 30° E., 5.7 miles (N. lat. 10°37'50", E. long. 120°12'), eastern Palawan and vicinity. In 51 fathoms. April 8, 1909. Length 86 mm. Type.